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INTERSTATE POLLUTION OF THE CONECUH-ESCAMBIA RIVER, CONFERENCE HELD IN THE COUNCIL CHAMBERS, CITY HALL, PENSACOLA, FLORIDA ON OCTOBER 24, 1962. TRANSCRIPT OF CONFERENCE PROCEEDINGS

Public Health Service
Washington, D. C.

1962

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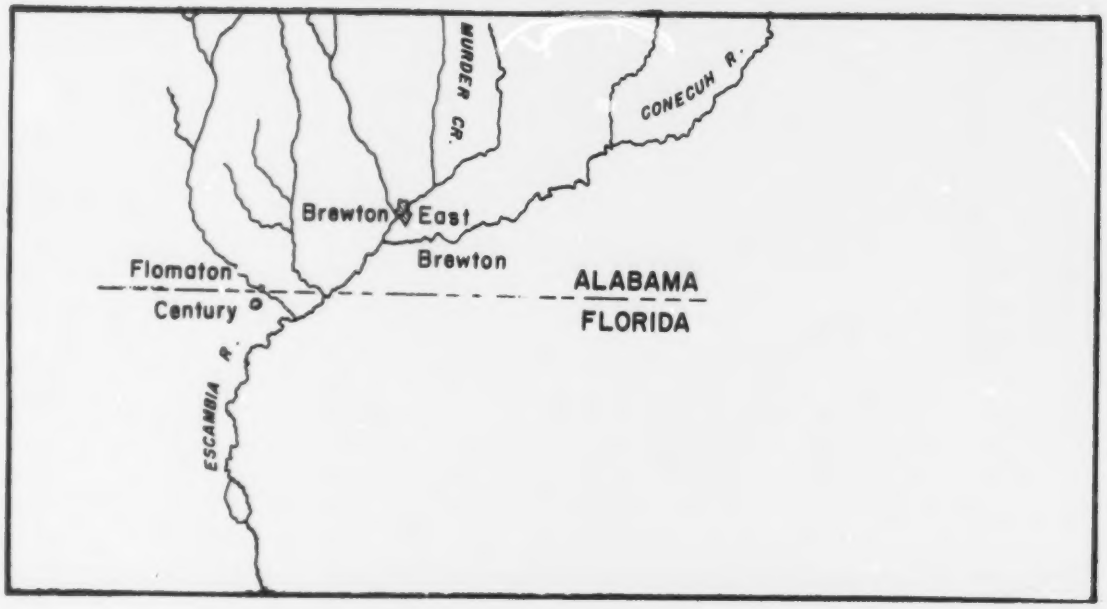
CONFERENCE

ON

INTERSTATE POLLUTION

OF THE

CONECUH-ESCAMBIA RIVER



PENSACOLA, FLORIDA

OCTOBER 24, 1962

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C O N F E R E N C E

In the matter of pollution of the interstate waters of the Conecuh-Escambia River, held in the Council Chambers, City Hall, Pensacola, Florida, on

October 24, 1962

Chairman: Mr. Murray Stein
Chief, Enforcement Branch
Division of Water Supply and Pollution Control
U. S. Public Health Service
Washington, D. C.

Conferees: Mr. John R. Thoman
Regional Program Director, Region IV
Division of Water Supply and Pollution Control
U. S. Public Health Service
Atlanta, Georgia

Dr. D. G. Gill
State Health Officer and
Chairman of the Alabama Water Improvement Commission
Montgomery, Alabama

Mr. David B. Lee
Director, Bureau of Sanitary Engineering
Florida State Board of Health
Jacksonville, Florida

A list of other attendees is attached as "Appendix A".

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PROCEEDINGS

The Chairman: The conference is open. This conference in the matter of pollution of the interstate waters of the Escambia River involving the states of Alabama and Florida is being held under the provisions of Section 8 of the Federal Water Pollution Control Act. Under the provisions of this act the Secretary of Health, Education, and Welfare is required to call a conference when requested to do so by a State water pollution control agency.

This conference was called by the Secretary of Health, Education, and Welfare in response to the written request of the Florida State Board of Health, dated May 1, 1962. The Florida State Board of Health for the purposes of the Federal program is the official Florida State water pollution control agency.

The purpose of the conference is to bring together state and local water pollution control agencies an' Department of Health, Education, and Welfare, and other interested parties to review the existing situation, the progress which has been made and to lay a basis for further actions, if any such should be indicated by all parties concerned, and to give the States, localities, and industries an opportunity to take any remedial action if such action should be necessary, or which may be indicated under State and local laws.

The conference technique is rather an old one. It is used by many State agencies informally in the normal conduct of their business in the field of water pollution and control. The idea of the conference was proposed by the United States Supreme Court in the famous case of New York and New Jersey involving interstate pollution. The Court said as far back as 1921, and I quote, "We cannot withhold the suggestion inspired by the consideration of this case, that the grave problem of sewage disposal presented by the large and growing population living on the shores of New York Bay is one more likely to be wisely solved by cooperative study and by conference and mutual concession on the part of the representatives of the States so vitally interested in it than by proceedings in any Court however constituted." And I think that the record has indicated that dealing with interstate pollution situations this is the best way to proceed, for the people to sit down together around the conference table and we will say that by and large most of the interstate problems -- pollution control problems we have had in the many States have been solved around the conference table. And I also might indicate for the -- at least the Federal Government, in our program we measure our success by the situations solved through the conference table technique and by the States solving theirs through the conference technique, rather than by the number of Court cases we bring. As a matter of fact, so far in the history of our program we have just had to take one municipality to Court and never an industry.

Under Section 8 of the Federal Act the Secretary of Health, Education, and Welfare has notified the official State Water Pollution Control Agencies of this conference. These agencies are: The Florida State Board of Health and The Water Improvement Commission of Alabama. Under the law this is a conference between these official agencies and the Department of Health, Education, and Welfare. The official agencies are privileged to bring whomever they wish to the conference and have them participate in the conference.

Conferees have been designated by these official agencies. David Lee has been designated as Conferee for the Florida State Board of Health. Dr. D. G. Gill, State Health Officer and Chairman of the Alabama Water Improvement Commission, has been designated as Conferee for Alabama. Mr. John Thoman, who is Regional Program Director, Division of Water Supply and Pollution Control of the Public Health Service with Headquarters in Atlanta, has been designated as Conferee for the Federal Government. And my name is Murray Stein. I am from Headquarters of the Department of Health, Education, and Welfare, Washington, D. C., and Mr. Secretary Celebrezze has designated me as Chairman of the conference.

Both the States and the Federal Government have responsibilities for dealing with interstate water pollution control problems. The Federal Water Pollution Control Act declares that the States have the primary right and responsibility in abating and controlling interstate pollution.

It has always been the policy of the Department of Health, Education, and Welfare to recognize this traditional role of the States. The function of our department is to encourage the States in this activity. However, we are charged with -- by the law with specific responsibilities in connection with interstate pollution control problems. The Federal Water Pollution Control Act provides that pollution of interstate waters which endangers the health or welfare of the persons in a State other than that in which the pollution originates is subject to abatement. The conference will be useful in providing a clear record delineating the factual situation, progress which has already been accomplished, and indicating what needs to be done, if anything, in correcting any interstate pollution problems which may exist. First, we have to determine if and in fact what it is. Under the Federal law the Secretary is required at the conclusion of the conference to prepare a summary of the conference which will be sent to all Conferees. The summary according to law must include the following: One, occurrence of pollution of interstate waters subject to abatement under the Federal Act. Two, the adequacy of measures taken toward abatement of pollution. And, three, the nature of the delays, if any, being encountered in the abatement of the pollution. It is suggested that the conference discussion be directed toward discussing these points so we may prepare a serviceable summary at its conclusion.

In addition the law requires the Secretary, at the conclusion of the conference, to determine whether effective progress towards abatement of pollution, if any such pollution exists, is being made.

Now a word about the proceedures governing the conference. Mr. L. Lee Lawson is making a stenographic recording of these proceedings for the purpose of aiding us in preparing a summary and also providing a record of what is being said and done here. We will make copies of the summary and the transcript available to the Conferees -- that is, to the two State agencies, the Alabama and the Florida agencies. Other people desiring to receive copies of the transcript and the summary should get in touch with their official State water pollution control agency and request such copies.

The Conferees will be called on to make statements. These will be the Department of Health, Education, and Welfare and the representatives of Florida and Alabama. At the conclusion of such statements Conferees will be given an opportunity to comment or ask questions, and at the conclusion of the Conferees discussions I may ask questions too. This procedure has been effective in the past in developing a clear statement of the problem and reaching agreements on the factual situation and on the problems and solutions.

I understand that we have distributed all the copies of the Public Health Service Report on the Escambia River, which was made in preparation for the conference. This is this blue covered book. Some of you people do not have copies of this report but we do have additional copies, as I understand, in our Cincinnati laboratory. We will pass out a list and if any in addition wish copies of this we will put your name and address on the list. In addition any people who have not registered should register on the cards we have made available for such registration.

We would like those who would like to make a statement to come up to the rostrum here or lectern marked "City Manager" and "City Attorney" and speak from there. We would, also, suggest that anyone making a statement from the audience, if there should be such an occasion later on, to identify himself for the purpose of record so we will know who is speaking.

At the present time I would like to call on Mr. John Thoman for the Department of Health, Education, and Welfare. Mr. Thoman.

MR. THOMAN: Thank you, Chairman Stein, the report of the Public Health Service was prepared by the Field Operations Section, Division of Water Supply and Pollution Control and Mr. Francis W. Kittrell, who is Chief of the Pollution Evaluation Section or Group, will present the report for the Public Health Service. Mr. Kittrell.

MR. KITTRELL: Mr. Stein, Conferees, Ladies and Gentlemen:

REPORT ON POLLUTION OF INTERSTATE WATERS OF THE CONECUH-ESCAMBIA RIVER

INTRODUCTION

The Florida State Board of Health, the Florida water pollution control agency, on May 1, 1962, requested the Secretary of the Department of Health, Education, and Welfare to call a conference on alleged pollution of the Escambia River system between Alabama and Florida.

This report presents an evaluation of the available information on the reach of the Conecuh-Escambia River from Brewton, Alabama, to and below Century, Florida. This reach of the river is shown in Figure 1. The water quality and waste discharge data used in this investigation were provided by the States of Alabama and Florida and by the Container Corporation of America at Brewton, Alabama. Further information was obtained from a reconnaissance of the region by Public Health Service personnel and from the Public Health Service Water Quality Network station at Century, Florida.

THE AREA

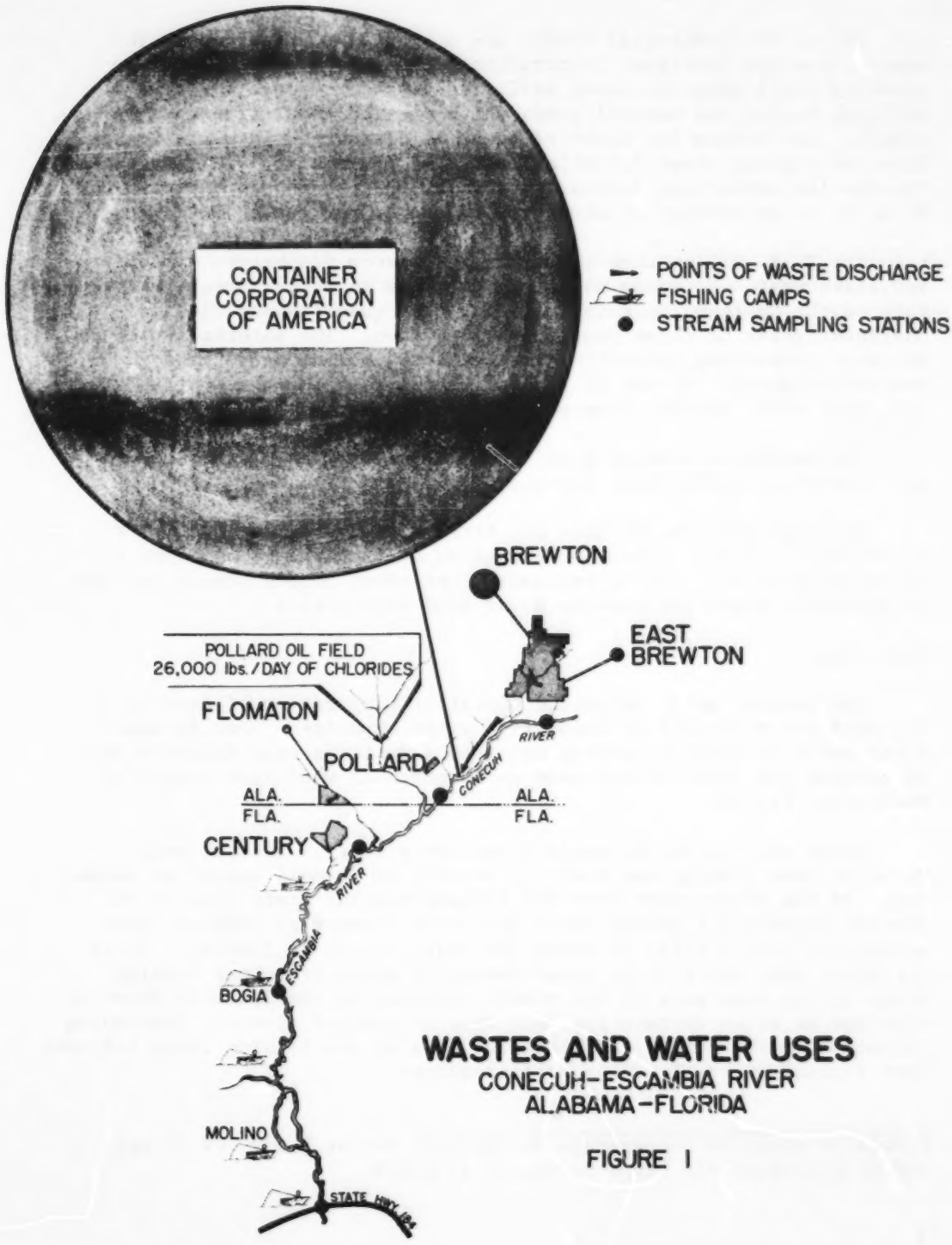
THE RIVER

The Conecuh River rises in the Eastern part of Alabama near the town of Union Springs. From there it flows generally Southwestward until it reaches the Florida State line between Brewton and Century. The river, known as the Escambia in Florida, then flows nearly due South until it empties into Escambia Bay approximately 45 miles from the Alabama State line. At Century, Florida, near the State line, the drainage basin contains 3,817 square miles; at this point the river has a median 7-day low flow of 1,270 cubic feet per second (based on 16 years of record). The mean discharge is about 6,200 cubic feet per second and the lowest flow of record is 600 cubic feet per second.

The Conecuh and Escambia Rivers flow through densely wooded and sparsely inhabited areas for much of their lengths. Above Century the river is swift and relatively shallow, while below Century the velocity decreases and the stream is generally deeper.

Sources of Waste

The Conecuh River above Brewton is free of any major source of waste discharge for a distance of about 50 river miles. In the reach of the river from Brewton to the State line the Conecuh receives municipal wastes from Brewton, East Brewton, and Flomaton; industrial wastes from the T. R. Miller Company, a lumber mill and wood preservative plant in Brewton, and the Container Corporation of America pulp and paper mill at Brewton; and drainage from the Pollard Oil Field. These waste sources are shown in Figure 1 and Table 1.



WASTES AND WATER USES
CONECUH-ESCAMBIA RIVER
ALABAMA-FLORIDA

FIGURE 1

All of the industrial wastes are subjected to treatment. The wastes from the Container Corporation of America plant, which is a bleached kraft pulp and paper mill, are discharged into a series of settling basins and natural ponds which provide about five days retention time before the waste effluent is discharged into the Conecuh River at a point about 3.5 miles above the state line. This treatment reduces the waste load discharged from 22,800 pounds per day of 5-day B. O. D. to an average of about 13,800 pounds per day.*

The T. R. Miller Lumber Company in Brewton discharges wood preservative wastes to ponds which may overflow to Murder Creek, a tributary of the Conecuh, in rainy periods. The quantity and chemical characteristics of these wastes are not known. The materials used in the wood preserving operations are creosote, Wolman salts, and pentachlorophenol; it may be assumed wastes reaching the Conecuh River from this plant include some of these materials.

The estimated sewered populations of this reach of the Conecuh are: Brewton, 4,000; East Brewton, 1,600; and Flomaton, 1,200.

Drainage from the Pollard Oil Field includes brine as a major constituent. Waste brines are pumped to oil separators and then injected underground. It is estimated that about 26,000 pounds per day of chlorides reach the Conecuh River from this source.

Water Uses.

The Conecuh River below the Container Corporation of America is not used for municipal or industrial water supplies. Some Escambia River water is used as cooling water by industries near Escambia Bay. At present the river is not used as a source of municipal supply by Pensacola, Florida.

Water uses of the Escambia River are primarily recreational. There is some fishing and boating, as well as a small amount of swimming. In the river reach from the Alabama-Florida State line to the Florida Highway 184 Bridge there are seven commercial fishing camps having for hire a total of about 100 boats for sport fishing. It is estimated that there is an equal number of privately-owned fishing boats in the same part of the river. Fishing in the Escambia River is regarded as about average for this type of coastal stream. Continuing increases in the numbers of boats for hire at the fishing camps indicate that fishing on the Escambia is increasing.

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* This is based on the average Taylor Hole Outlet B.O.D. of 77 mg/l and an estimated discharge volume of 21 M.G.D.

TABLE I

SOURCES OF WASTE

Source of Waste	Location (River Miles from Mouth)	Quantity of Waste	Type of Waste
Brewton	54[1]	4,000 P.E.*	Domestic Sewage
T. R. Miller Lumber Co.	54[1]	Unknown	Wood Preservatives
E. Brewton	54[1]	1,600 P.E.*	Domestic Sewage
Container Corp. of America	50	81,000 P.E.*	Kraft Paper Mill
Pollard Oil Field	46[2]	26,000 lbs. of chlorides per day	Brines
Flomaton	45[3]	1,200 P.E.*	Domestic Sewage

* P.E. = 1 Population Equivalent = 0.17 lbs./day of 5-day B.O.D.

1 - Confluence of Murder Creek.

2 - Confluence of Little Escambia Creek.

3 - Confluence of Big Escambia Creek.

EFFECTS OF WASTE DISCHARGES ON WATER QUALITY

The Container Corporation of America began production at its Brewton plant late in 1957. Surveys of the Conecuh and Escambia Rivers were made by the Alabama Water Improvement Commission alone in 1956 and cooperatively with the Florida State Board of Health in 1958. Since that time the Conecuh and Escambia Rivers have been monitored routinely by the Container Corporation of America at three river stations:

1. Above Brewton (Hendley Bridge).
2. At Pollard.
3. At Century.

In addition to these studies, a biological survey of the river has been made annually since 1957 by the Institute of Paper Chemistry. In Table 2 are presented the total numbers of observations available at each of five stations on the Conecuh and Escambia Rivers in the reach examined in this study.

The samples were obtained at a wide variety of river discharge and temperature conditions but were concentrated in the high temperature and low river discharge seasons, i.e., late summer and autumn.

These data are considered adequate to characterize the average water quality of the Conecuh and Escambia Rivers from Brewton to and below Century, Florida, both before and after the Container Corporation of America began production.

The Hendley Bridge sampling station has been used as a control station in estimating the effects of waste discharges entering the river between Brewton and Century.

The available data were sorted into four discharge ranges (2,500, 2,500-4,990, 5,000-7,500, and 7,500 cfs) and four temperature ranges (13, 14-18, 19-24, and 25° C.). Comparisons of conditions at Hendley Bridge, Pollard, Century, Bogia, and the Florida 184 Bridge were made in each group for which data were available. The results of these comparisons are discussed here in terms of the change in each parameter from the values observed at the Hendley Bridge above Brewton. Changes in all parameters from Hendley Bridge to the downstream stations were found to be relatively independent of temperature, and the temperature classes for each discharge range were therefore averaged together to obtain the values used in this discussion.

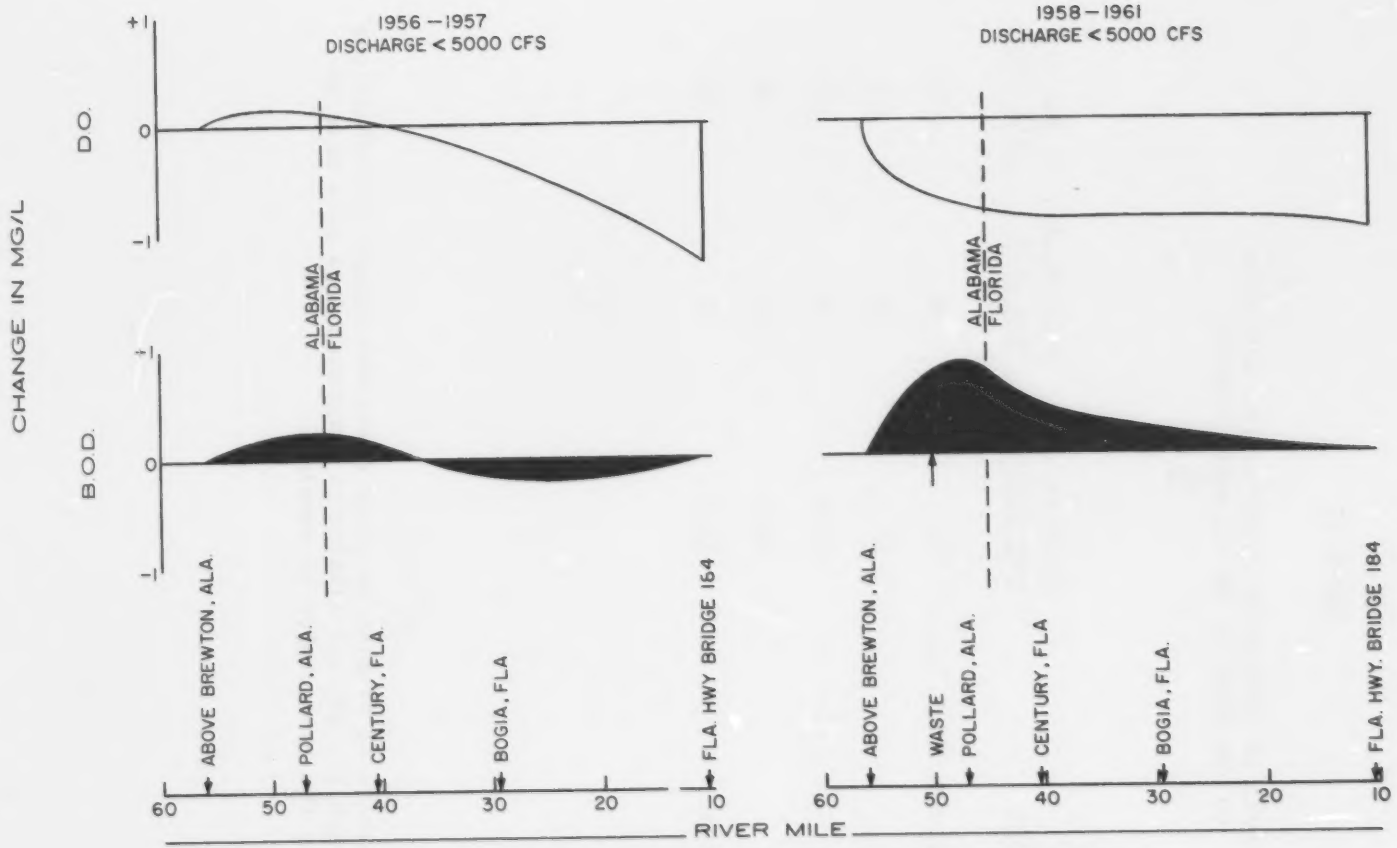
B.O.D. and D.O. changes from stream flows of less than 5,000 cfs at Century are presented in Figures 2 and 3. Figure 2 shows conditions before the Container Corporation of America plant began production. The slight increase in B.O.D. between Brewton and Century was about what would be expected from the quantity of municipal wastes discharged

TABLE II

SUMMARY OF NUMBERS OF OBSERVATIONS AVAILABLE
ON THE CONECUH AND ESCAMBIA RIVERS*

Station	River Miles From Mouth	Total Number of Samples 1956-1957	1958-1961
Brewton (Hendley Bridge), Ala.	56	38	138
Pollard, Ala.	47	19	162
Century, Fla.	40.5	37	217
Bogia, Fla.	29.5	65	28
Fla. Highway 184	10.5	72	28

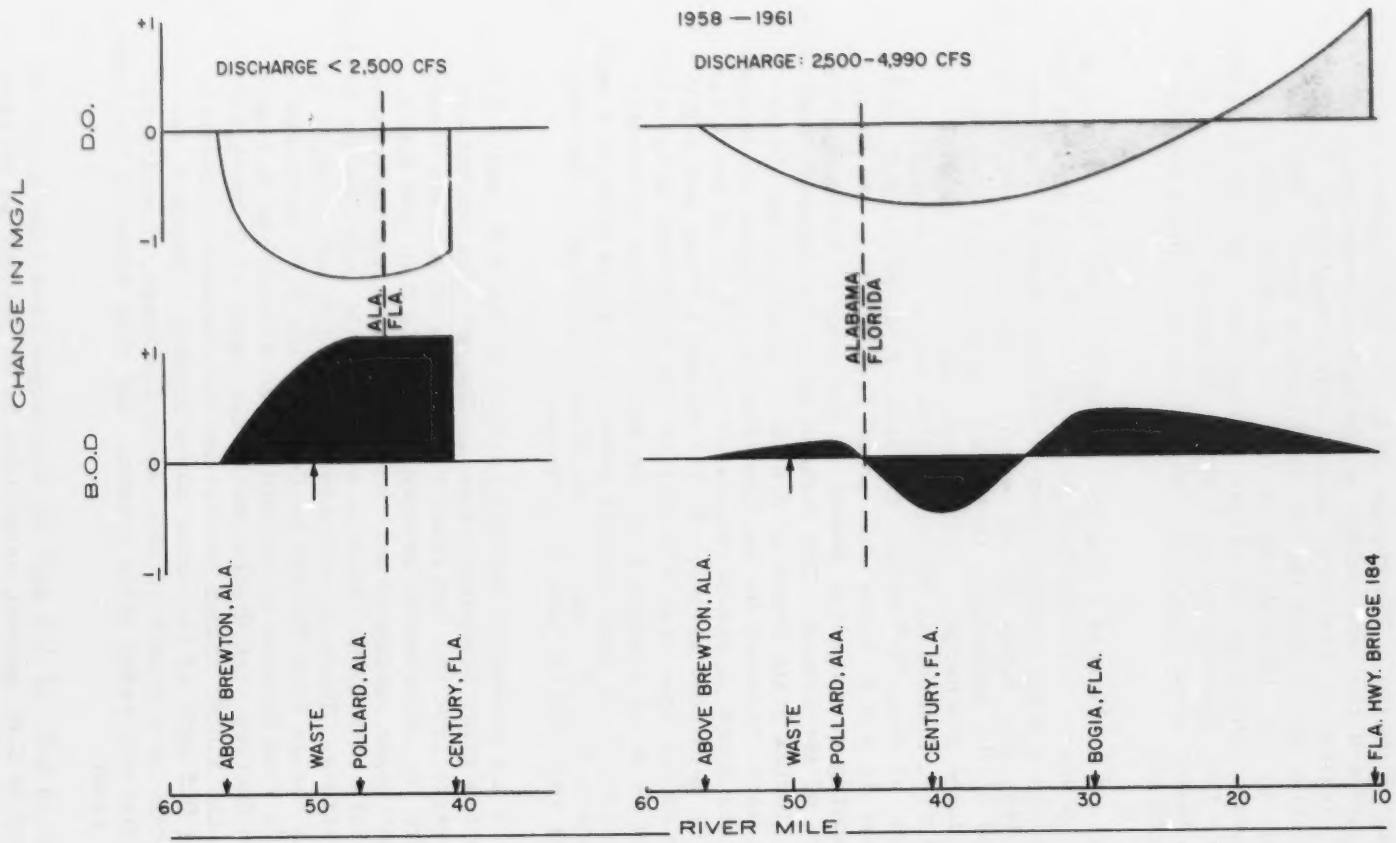
* These are numbers of samples on which Dissolved Oxygen determinations were made. B.O.D., pH, and Alkalinity determinations were made on approximately the same number of samples.



CHANGES IN BOD AND DO BEFORE AND AFTER INSTALLATION OF CONTAINER CORP. OF AMERICA PLANT

CONECUH – ESCAMBIA RIVER
ALABAMA – FLORIDA

FIGURE 2



CHANGES IN B.O.D. AND D.O. ATTRIBUTABLE TO CONTAINER CORP. OF AMERICA WASTE PLANT

CONECUH-ESCAMBIA RIVER
ALABAMA—FLORIDA

FIGURE 3

from Brewton and Flomaton. The change in D. O., which showed an increase at Pollard and the same values at Century as were observed above Brewton, indicated that these wastes were a negligible burden on the waste assimilation capacity of the Escambia River. The decrease in D. O. and the lack of change in B. O. D. below Century reflected natural changes in the stream environment. The pH decreased about 0.3 units from Brewton to the Florida 184 bridge, while total alkalinity decreased about 4 mg/l in the same reach. These changes were not significant.

Figures 2 and 3 illustrate changes in the D.O. and B.O.D. regime brought about by wastes from the Container Corporation of America plant. Figure 2 shows the average changes downstream from Brewton for river discharges of less than 5,000 cfs at Century. The effects of the wastes are evident and of the magnitudes that would be predicted from the quantities of waste discharged. There is an increase in B. O. D. of about 0.7 mg/l from Brewton to the State line and a corresponding decrease in D.O. of about 0.9 mg/l. The lack of change in D.O. and the small change in B.O.D. below this point indicate that the waste load is not causing an excessive demand on the organic waste assimilation capacity of the stream. The Alabama Water Improvement Commission consulted the Florida State Board of Health in establishing the requirements for waste disposal by the Container Corporation of America. The Florida State Board of Health requested that a D.O. of not less than 3.5 mg/l be permitted anywhere in the Escambia River and a D.O. after recovery of not less than 6.5 mg/l at the Chemstrand Corporation plant site. In terms of changes from the Hendley Bridge at summer-low flow conditions these requirements permit a maximum drop of 4 mg/l in the river and a drop of 1 mg/l to the Chemstrand Plant. The data show that these requirements are being surpassed.

In Figure 3 are presented the net changes in the D.O. and B.O.D. regime for two low river discharge ranges. The net changes reflect the effect of waste from the Container Corporation of America alone; these values are the differences between changes in D.O. and B.O.D. before the plant began operation and those after it began operation. At discharges less than 2,500 cfs data are available only for the Pollard and Century stations. There is an increase in B.O.D. of 1.1 mg/l to Pollard, and no change from Pollard to Century; the D.O. data show a drop of 1.3 mg/l from Brewton to Pollard and an increase of 0.2 mg/l from Pollard to Century. At discharges in the range of 2,500-4,990 cfs at Century the B.O.D. change downstream from Brewton fluctuates, lying between $\pm$ 0.5 mg/l of the value above Brewton. The D.O. decreases to Century as a result of this waste discharge, dropping to 0.7 mg/l less than the value above Brewton, and then rises in the lower reaches of the river.

The change in D.O. of 1.3 mg/l at discharges less than 2,500 cfs represent a drop in D.O. percent saturation to 80 percent at Pollard from 96 percent above Brewton for the highest temperatures (29°C.) reported in the data available. These conditions are the worst which may be expected to occur with present loadings.

The pH and total alkalinity changes are about the same after the Container Corporation of America plant began operation as they were before.

A U. S. Public Health Service Water Quality Network Station has been operating at Century, Florida, since 1960. Data available from this station show that the quantities and types of organic materials present in the Escambia River at this point suggest a stream having a highly stabilized organic loading and very little industrial waste. The coliform data available for the Conecuh and Escambia Rivers are far too sparse to show the extent of fecal pollution in the river. The five scattered coliform measurements reported for recent years have an average of 2,900 organisms per 100 ml. This value is not, however, regarded as conclusive because of the extremely small number of values upon which this average is based. While the extent of fecal pollution has not been measured adequately, the discharge of untreated municipal wastes poses a threat to bacterial quality of the river. Additional data on coliform densities should be obtained.

Chlorides in the Escambia River increase from 5 mg/l above Brewton to 14 mg/l at Century, probably due to drainage from the Pollard Oil Field. This increase does not represent a significant change in the water quality of the Escambia River.

Waste discharges may affect the aquatic life of the stream as well as the water quality. Biological surveys of the Escambia River have been conducted annually since 1957. The results of these surveys and a reconnaissance of the stream by a Public Health Service biologist indicates that wastes from the Container Corporation of America have had a detrimental effect on some of the benthic organisms of the stream. The variety and numbers of organisms sensitive to pollution have decreased since 1957 from Gay Lake (the point of discharge of Container Corporation of America wastes) downstream to the Alabama-Florida State Line. Although five genera of sensitive forms were found in this area, only one individual of each species was present in the collected samples. This represents a reduction of from 6 to 25 individuals per species per sample in the upstream stations. Six species of immature mayflies were found at the station 50 yards upstream from the Gay Lake outfall, whereas one individual was found 200 yards downstream from the outfall, four species were found at Pollard, and two at Century Bridge. Immature caddisflies were similarly affected. Immature stoneflies were found at Mystic Springs. This represents the first occurrence downstream from the mouth of Gay Lake in 1962. From Century, Florida, downstream to Molino there was in 1962 a balanced biological population similar to that above Brewton. There is no evidence to suggest that the overall changes in the benthic population from Gay Lake to Century have been accompanied by any change in the stream fishery.

Growths of Sphaerotilus were found from Gay Lake almost to Century in 1962; these growths have been found in this reach only

since the Container Corporation of America began operation, and the growths have been found farther downstream each year since 1960, when their presence was first reported. The presence of Sphaerotilus, a filamentous sheathed bacterium, indicates that organic wastes are being stabilized in the stream environment. When conditions favoring their growth exist, these bacterial slimes tend to dominate the environment and contribute to the dying out of the more sensitive organisms, thus causing an unbalanced biological complex. For this reason the presence of any quantity of Sphaerotilus at all is a source of concern about the potential health of the stream environment. The moderate amounts of the slimes observed up to present in the Conecuh and Escambia Rivers between Gay Lake and Century have not been associated with serious damage to the aquatic environment; continuing observations of stream conditions and additional waste control measures, if needed, can prevent the development of these growths to the point at which they would constitute a damage to the aquatic environment.

Fish kills have been reported in the Conecuh and Escambia Rivers below Brewton. A severe kill in August 1961 was attributed by the Alabama Water Improvement Commission to a spill of wood preservative chemicals from the T. R. Miller Lumber Company in Brewton. Concurrently with this fish kill there was a heavy loss of the intolerant biota as far downstream as Molino, Florida. The biota have since recovered from this damage. A minor fish kill also was reported in 1961, but the cause has not been traced to a specific waste discharge.

Discussions with local boat camp operators and law enforcement officers indicate that the presence of the Container Corporation of America plant has had no detrimental effect on the sport fishery in the Escambia River above the Florida Highway 184 bridge. Fishing in the Century area has been generally better this year than the past two years; there are occasional complaints of unpleasant taste or odor in fish caught near the State line, but these reports are relatively infrequent. Below Century the boat camp operators interviewed described business and fishing in recent years as good and report no complaints of taste or odor in fish caught in this reach of the river.

Moderate effects of waste discharges from sources in Alabama on the water quality of the Conecuh and Escambia Rivers are reflected in the available data. These are effects at all times for which data are available on the chemical water quality and on the biological environment of the Escambia River which extends beyond the Florida-Alabama State line. The effects, however, do not exceed those that may be detected downstream from any waste discharge for which adequate treatment and control have been provided. In addition to these constant effects of the waste discharges there has been at least one spill of waste materials which have catastrophic effects on the biological environment. Bacteriological examinations have been insufficient to reveal whether excessive bacterial contamination from the untreated sewage discharges of Brewton, East Brewton, and Flomaton persists to the Alabama-Florida State line.

The uses of the Escambia River in Florida are primarily for recreation and for industrial cooling water. Available data (other than bacteriological) indicate that the present over-all change in water quality from sources of waste in Alabama is not sufficient to endanger the use of the river for either of these purposes. There has been occasional damage to recreational uses, presumably caused by releases of materials lethal to fish and to the organisms upon which they feed. Such releases can and should be controlled. Additional bacteriological examination is needed to determine whether untreated sewage causes excessive interstate bacterial contamination.

CONCLUSIONS AND RECOMMENDATIONS

The effects on water quality in the Conecuh and Escambia Rivers due to wastes entering the stream in Alabama are apparent but not excessive. The net loss of 1.3 mg/l of Dissolved Oxygen, which results in a minimum D.O. concentration of about 80 percent of saturation at summer temperatures, does not appear to interfere significantly with legitimate water uses of the Escambia River in Florida. The data available indicate that discharge of these wastes to the Escambia River has not up to the present time had any permanently damaging effects on the uses of the Escambia for recreational and industrial water supply.

Because of the occasional fish kills that have occurred in the past, the reports of unpleasant taste and odor in fish, and the progression of Sphaerotilus growths downstream, these recommendations are made:

1. The biological surveys and routine monitoring of water quality should be continued and the emphasis on conditions at low flow and high temperature should be maintained. If excessive Sphaerotilus growths should develop steps should be taken for control by Container Corporation of America.

2. Special emphasis should be placed on the prevention of spills of toxic or lethal materials into the aquatic environment from all waste sources at the T. R. Miller Lumber Company wood preservation plant.

3. Sewage treatment should be provided for municipal wastes from Brewton, East Brewton, and Flomaton to eliminate local pollution and possibility of excessive interstate bacterial contamination. A grant for the construction of a sewage treatment plant for Brewton and East Brewton should alleviate part of this problem.

THE CHAIRMAN: Thank you, sir.

Do we have some questions on this report? Do we have any questions on Mr. Kittrell's report?

DR. GILL: No, I have nothing to comment on at the present time. These recommendations are to be taken into consideration by this group before we finish.

THE CHAIRMAN: Yes.

DR. GILL: But as I gather in general from Mr. Kittrell's report it is hard to demonstrate any real damage to the stream at the present time.

MR. KITTRELL: To the water uses.

THE CHAIRMAN: To the water uses. I might say that my experience, and I have been working for the Federal Government for 21 years, we have covered 300 cities and industries in these cases ranging from big to small and some in St. Louis, Detroit and New York City. I think that we might consider ourselves very fortunate here on the basis of this report. This is about the best situation that we have run into. Now, let's see just for the purposes of the record if I understand this, this looks like a relatively simple matter in that the potential sources of pollution are relatively few.

(Whereupon, there was a discussion off the record.)

THE CHAIRMAN: Obviously the large potential source of pollution looking at the chart, is the Container Corporation of America. The Container Corporation of America is providing treatment for its waste. Before the Container Corporation of America went into operation the Alabama-Florida authorities consulted with each other on the quality of the water at the State line, which could conceivably be affected by this corporation, and certain requirements were agreed to. Not only are these requirements being met but they are being surpassed. Is that right?

MR. KITTRELL: That is correct.

THE CHAIRMAN: Now, I think from this it is -- correct me if I am wrong, from this it is pretty obvious that fitting any big industry into a community or into an area will affect water quality. Consequently, it is a question here obviously, whether it interferes with water uses, or particularly from the Federal Government's point of view whether it interferes with water uses in other states. There is no indication from your report that this is the case here.

Now, the other situation we have deals with the three communities, that is, Brewton, Flomaton, and one other.

MR. KITTRELL: East Brewton.

THE CHAIRMAN: East Brewton. As I understand it, and this may not have been in the report, these communities are discharging untreated wastes into the stream now.

MR. KITTRELL: That is true.

THE CHAIRMAN: Now, however, this may come out later and maybe we should let it come out later. We do have a Federal grant program for construction of waste treatment facilities and it is included in your report that there may be grants to these communities for their construction.

I wanted to make one thing clear. There is no evidence on the basis of your report that such bacterial contamination really exists of this nature in Florida, is there?

MR. KITTRELL: That is correct.

THE CHAIRMAN: In other words, we don't have any evidence to that effect in your report?

MR. KITTRELL: That is right.

THE CHAIRMAN: Now, another situation, we have two more. One, is the Pollard Oil Field. You have indicated what all the other industrial treatment was, but there is no indication what the treatment in the oil field was.

MR. KITTRELL: I was thinking that was in the report but they do practice oil separation from the brines which are pumped up with the oils and the brines are reinjected back into the ground.

THE CHAIRMAN: Reinjected back into the ground. And evidently that doesn't create a problem?

MR. KITTRELL: No.

THE CHAIRMAN: In the stream, the only other situation that we have is the T. R. Miller Lumber Company which treats logs and I think there again you have a situation that is inherent in any industrial or municipal waste treatment plant. They do provide treatment and they have ponding too, is that correct?

MR. KITTRELL: That is correct. With control.

THE CHAIRMAN: With controlled discharge. The problem with any of these ponds is that sometimes the system or the treatment system goes awry and you have spills. Now, this is a recurrent thing that can happen wherever you are. As long as you have men and machines there is always the possibility that something can happen. I think from looking at the record that there is really just one substantial major spill that you have had here, and the question here is do they have enough safeguards at the present or remedial measures to be reasonably sure that these spills or an accident doesn't happen.

Now, again, I would like to -- Living in a populous and industrialized country such as we have, the business of stopping a spill is an objective and I think we are getting the State agencies better all the time in preventing them. And, I think, just looking at the past we would have to recognize that these things will happen, do happen and will happen again with municipalities as well as industries. When a treatment plant is not working it gets bypassed and sometimes this is a question of maintenance and surveillance. You might liken this, in a sense, to any utility you have, such as your electric utility or your telephone utility. You know that year in and year out you probably would not receive one hundred percent service. Whatever you do sometimes there is a break. It is an unfortunate thing when there is a break in a pollution control measure but these happen and it is a question of filling it in. Now, as far as I can --

MR. KITTRELL: Pardon, we have been informed that the T. R. Miller Company has added additional precautions and I am sure some of the Alabama representatives will bring this out since --

THE CHAIRMAN: I just wanted to get this -- Now, the three recommendations you make are for the continuance of surveillance. As you know at the conference stage we like to, as much as we can, to say -- we like to have the States do this. As I understand it this surveillance will be the surveillance which in the past has been done by the State agencies concerned, not by the Federal Government, is that right?

MR. KITTRELL: That is correct. You do have the U. S. Public Health Service and National Water Quality Network Monitoring Station at Century and data from that point will continue to be available.

THE CHAIRMAN: This, I think -- Again, let me go over these three points. One is the Sphaerotilus and that is not present in quantities, as I understand, to interfere with legitimate water uses. The fact that they are present always means that there is something to watch and this has to be kept under surveillance. And I want to make this clear. The fact that the Sphaerotilus is there, as I understand, this report has not indicated that there is an interference with legitimate water use now. Also, the fact that the change of life, such as mayflies and caddisflies, indicates that something is going into the river. But there is no indication again that this interferes with the legitimate water use. However, as long as that is happening I think this is a kind of signal which indicates to the people of water pollution control that something is going into the river and something has to be watched now. Generally speaking, of course, the treatment of sewage -- getting communities to provide sewage treatment is a job for the States and I am sure it will come later. I might say that as far as we can see, from the Federal Government, that the States of Alabama and Florida are very aggressive in securing adequate municipal and industrial waste treatment in their States. And I do think that the State programs you have here stand up very well in comparison with the State programs of other parts of the country, and I don't think you have to take a back seat to anyone with the kind of programs you have. I wanted to go over

this because I know this report is kind of technical and to translate it into terms that I think you generally can understand what we are talking about.

Thank you, Mr. Kittrell.

Mr. Thoman, do you have anything more?

MR. THOMAN: Nothing more.

THE CHAIRMAN: Well, at this time we would like to call on Mr. David Lee from the State of Florida. Mr. Lee.

MR. LEE: Mr. Chairman, I have no comment other than to say that we did put in the letter that requested this hearing and conference emphasizing pollution hoping that before the time ceases that you will permit those who have alleged pollution to speak on the points. There are many people I know from the Escambia River area and I hope that they will get their moment to speak.

One point I should comment on is: Number one, the monitoring program, I am sure you know and I feel that the majority of the auditors know that we have a full-time, although small, monitoring team located here at Pensacola set up primarily for the Escambia River although it has gotten many other problems. We have a fully qualified chemist, an engineer, and a biologist and will continue this monitoring program. We have been slightly negligent in our bacteriological studies but we will also pick this up.

Other than those brief remarks we have no comments.

THE CHAIRMAN: Well, thank you, Mr. Lee. I would like to emphasize again some of the remarks we have made here or merely summarize what the report of our investigators show.

As Mr. Lee pointed out we hope that people who have things to say will be given an opportunity to speak and no conclusions will be drawn until we hear from everyone who has something to say about it.

The reason for going over this report was to indicate to the people here as clearly as possible what was in it so you could judge this accordingly.

I think for our purposes what we would like to do is to now call on Alabama and then at the conclusion of Alabama's statement or any comments they may have we will have a very short recess, and then make a determination of who from the audience would want to speak. I would suggest that after we do that people from Florida talk with Mr. Lee and people from Alabama get in touch with Dr. Gill and we can call them in that order.

DR. GILL: Mr. Chairman, we from the Alabama Water Improvement Commission have prepared a statement from our records on this particular area. I do want to say that our Commission was a little bit disturbed at the idea of a Federal hearing when we have had no complaints from Florida regarding alleged pollution other than some newspaper stories and so on and no direct indication has been made to us regarding anything that needed correcting in the stream. Now, that is not usual between us and Florida because we are on good terms and we work together and our Commission had the feeling that they stood ready at any time to take whatever action was indicated on our part to see that this stream met the standard that was agreed upon jointly by Florida and Alabama. And, therefore, the reason for Federal intervention at this point is not too clear to our Commission and it didn't sit too well. So at this time we have several people here. We have representatives from the Cities of Brewton, East Brewton, and Flomaton; representatives from Container; representatives from T. R. Miller; and we have a representative from our Conservation Department. At this time I would like to call on Mr. Crockett, who is our Chief Engineer of our Water Improvement Commission, to read, skipping, if you will, charts. However, I would like for them to be made a part of the record of this meeting.

THE CHAIRMAN: Without objections we will include the charts in the transcript.

MR. CROCKETT: Mr. Chairman, before I start reading this may I ask Mr. Bolton to put a chart up here which will be a part of our presentation. Are there any objections to my sitting here or do you prefer that I stand?

THE CHAIRMAN: Suit yourself. Make yourself as confortable as you can.

MR. CROCKETT: You mentioned a slight recess at which time we could arrange this chart. But I will proceed with the presentation.

THE CHAIRMAN: I think that might be better in the interest of time.

MR. CROCKETT:

Statement of Water Improvement Commission to
Pensacola Conference on Conecuh-Escambia River System

October 24, 1962

This conference has been called in accordance with Section 8 of the Federal Water Pollution Control Act (33 U.S.C. 466 et seq.) at the request of the Florida State Board of Health to consider alleged pollution of interstate waters of the Escambia River from sources within Alabama. The request by the Florida State Board of Health has been made notwithstanding joint investigations conducted by that agency and the

Alabama Water Improvement Commission as recently as August 1958 and the fact that no complaints relating to interstate pollution of the Conecuh-Escambia River system have been registered with the Alabama Water Improvement Commission by the Florida agency since 1958 with the exception of a fish kill which occurred in Murder Creek, a tributary of the Conecuh River, on August 12, 1961. The findings of the 1958 report, concurred in by both agencies, concluded that the Conecuh-Escambia River was a normal, healthy stream from Brewton to a point below the bridge crossing of Florida Highway 184, over 45 miles below Brewton, and some 33 miles in Florida.

The Water Improvement Commission contends that the allegations of interstate pollution which have led to these proceedings are not based on established technical facts. In support of this contention the Commission presents for the conference's consideration a summary of conditions existing in the entire Conecuh River Basin within Alabama which could conceivably be considered as affecting the quality of the Escambia River in Florida. Among other things, this summary includes the results of (1) studies conducted by the Water Improvement Commission during August 1956, (2) a joint study by the Commission and the Florida State Board of Health, (3) a routine stream and waste monitoring program conducted by Container Corporation of America, (4) fish population studies carried out by Agricultural Experiment Station, Auburn University, and the Alabama Department of Conservation in cooperation with the Florida Game and Fresh Water Fish Commission, (5) results of National Water Quality Network station located on Escambia River near Century, operated by the U. S. Public Health Service in cooperation with the Florida State Board of Health, and (6) results of biological studies conducted annually since 1957 by the Institute of Paper Chemistry under a contractual arrangement with Container Corporation of America.

GENERAL DESCRIPTION OF CONECUH RIVER BASIN

The headwaters of the Conecuh River are in Bullock County near Union Springs, Alabama. The river flows in a southwesterly direction some 150 miles where it enters the State of Florida near Flomaton, Alabama. The Conecuh River Basin comprises approximately 3,922 square miles in Alabama.

The Basin is, for the most part, an agricultural area. The major industry in the Basin is lumbering, together with its associated activities. In recent years strip mining of brown iron ore has become an important part of the local economy in certain areas.

As in other basins in south Alabama, the Conecuh River Basin is well supplied with an abundance of both ground and surface waters. There are 19 public water supplies in the Basin, all of which are obtained from underground sources. There are two hydroelectric plants

on the Conecuh River. The upper reservoir is created by a dam located at Gantt, having a height of 35 feet and impounding an area of approximately 1,600 acres. The dam creating the lower reservoir is located about one mile northeast of River Falls. This dam has a height of 42 feet and impounds some 600 acres extending to Gantt Dam. These lakes have been extensively developed as recreational areas.

SOURCES OF POLLUTION

Municipal. There are 23 incorporated communities in the Conecuh River Basin with a population in 1960 of 52,727 as shown in Table I.

Table I

List of Incorporated
Municipalities Conecuh River Basin

Incorporated Municipalities	1960 Population
Andalusia	10,263
Brantley	1,014
Brewton	6,309
Castleberry	669
Chapman	617
Dozier	335
East Brewton	2,511
Evergreen	3,703
Flomaton	1,454
Fort Deposit	1,466
Georgiana	2,093
Glenwood	416
Goshen	260
Greenville	6,894
Luverne	2,238
McKenzie	558
Petrey	165
Pollard	210
Red Level	327
Repton	314
River Falls	401
Rutledge	276
Troy	10,234
Total	52,727

Of these communities eleven have public sewerage systems serving 27,500 people, and five have sewage treatment facilities in operation at this time. One treatment facility, which will serve the City of Brewton, is presently under construction. The Water Improvement Commission has endorsed an application by the Town of East Brewton to the Housing and Home Finance Agency, Community Facilities Administration,

for an advance of planning funds to be used in performing an engineering study of its sewage disposal problem. Table II lists the population and status of sewerage systems for municipalities in the Conecuh River Basin in Alabama. Also included in the table is the population equivalent, expressed in terms of biochemical oxygen demand (B.O.D.) before and after treatment, if provided, together with the name of the receiving stream and the number of miles from the point of discharge to the Alabama-Florida line.

As can be seen in Table III, industries in the Basin discharging wastes include those engaged in iron ore washing, the manufacture of pulp and paper, and wood preserving. For discussion purposes, the eight ore washing plants may be considered collectively. These operations, grouped in areas of Pike, Crenshaw, and Butler Counties, consist of stripping the overburden from the ore, mining and hauling the ore to a central plant where it is washed and crushed. Wastes from this industry consist of wash water containing dirt removed from the ore. Treatment is entirely mechanical with no chemicals or oil being used. Experience has shown that plain sedimentation removes the silt and dirt from the wash water in a satisfactory manner. Each of the crushers in the Basin provides adequate settling facilities for their wash water and is inspected routinely by members of the Commission's Technical Staff.

The T. R. Miller Mill Company, located at Brewton, Alabama, is one of the largest lumber manufacturers in Alabama. Its operations include the manufacture and sale of lumber and lumber products. The mill also has a box fabricating plant and a treating department which treats poles, timbers and lumber with various wood preservatives. Liquid wastes are discharged only from the wood treating department. Three types of wood preserving chemicals are used in the treating operation. Approximately 75 percent of the treating department's production is creosote treated, 15 percent treated with pentachlorophenol (Dowicide 7, oiled), and 10 percent with Wolman Salts.

Following the completion of each treating cycle the wood preservative remaining in the pressure cylinder is pumped to storage. A new charge of wood to be treated is loaded into the cylinders, and with the aid of a slight vacuum the moisture in the wood, together with any residue adhering to the sides of the cylinder from the previous cycle, is blown to a holding pond. Prior to August 1961 the pond system consisted of two small sections consisting of approximately one acre in area. One section of the pond received the moisture and residue from the creosote and Dowicide treating cylinders, while the other section of the pond received wastes from the Wolman Salts treating cylinder. Oil accumulating in the pond receiving creosote and Dowicide wastes was burned periodically. The accumulated water from the first section flowed into the second section and thence into a ditch which enters Murder Creek approximately 3/4 miles above the Brewton - East Brewton

TABLE II

Status of Sanitary Sewerage Systems Conecuh River Basin

Community	1960 Pop.	Sewered Pop.	Type Treatment	Pop. Equiv. Disc.	Receiving Stream	No. Miles Upstream Ala.- Fla. Line
Andalusia	10,263	4,000	Secondary	400 E	Little Patsaliga Creek	63
Brantley	1,014	900	None	900	Conecuh River	83
Brewton	6,309	4,000	None	*Outfall 1 - 1220 *Outfall 2 - 530	Burnt Corn Creek Murder Creek	12 12
E. Brewton	2,511	1,600	None	1,600	Murder Creek	12
Evergreen	3,703	2,500	Secondary	250 E	Trib., Murder Creek	38
Flomaton	1,454	1,200	None	1,200	Big Escambia Creek	1
Ft. Deposit	1,466	700	Primary	420 E	Pigeon Creek	102
Georgiana	2,093	1,100	Primary	880 E	Rocky Creek	79
Greenville	6,894	5,500	None	5,500	Persimmon Creek	94
Luverne	2,238	2,000	None	2,000	Patsaliga Creek	93
Troy	10,234	4,000	Secondary	**150	Double Branch	109
Atmore State Prison Farm	700	700	Primary	470 E	Wetweather Creek	20

*Taken from results of WIC study, September - November, 1956.
**Taken from results of WIC study, June, 1960.

Industrial. Industrial sources of pollution on record in the Conecuh River Basin are included in Table III.

TABLE III

Sources of Industrial Wastes on Record Conecuh River Basin

Industry	Nature of Wastes	Pop. Equiv. Before Treatment (BOD)	Treatment Provided	Pop. Equiv. Discharged (BOD)	Receiving Stream	No. Miles Upstream From Ala. Fla. Line
McGhee-Merrell Mining Co. Honoraville	Iron Ore Washing	None	Sed.	None	Patsaliga Creek	98
Glenwood Mining Co. Greenville	Iron Ore Washing	None	Sed.	None	Pigeon Creek	90
Camelia Mining Co. Greenville	Iron Ore Washing	None	Sed.	None	Pigeon Creek	88
KMC Mining Co. Greenville	Iron Ore Washing	None	Sed.	None	Pigeon Creek	89
Woodward and Acree #1 Greenville	Iron Ore Washing	None	Sed.	None	Pigeon Creek	85
Woodward and Acree #2 Greenville	Iron Ore Washing	None	Sed.	None	Pigeon Creek	88
Pigeon Creek Mining Co. #1 Greenville	Iron Ore Washing	None	Sed.	None	Pigeon Creek	87
Pigeon Creek Mining Co. #2 Greenville	Iron Ore Washing	None	Sed.	None	Pigeon Creek	86
Container Corp. of America Brewton	Pulp and Paper	134,000	Sed. Lagoons	78,000	Conecuh River	3.5
T. R. Miller Mill Co. Brewton, Treating Dept.	Wood Preserving	Undet.	Lagoons	Undet.	Murder Creek	13

Highway bridge. In September 1961 the pond area was approximately doubled and deepened to three feet. An overflow pipe was installed with a valve used to control the release of wastes. Present practice is to keep the valve closed during normal operations, taking advantage of seepage and evaporation. The valve is opened only under the supervision of management personnel.

Container Corporation of America announced its intention to construct a pulp and foodboard mill near Brewton in 1955, and operation was begun during December 1957. The mill employs the conventional kraft process and has as average daily production of bleached kraft foodboard of 300 tons per day. Maximum production is approximately 345 tons per day, although when market pulp is produced instead of foodboard, maximum production may reach 400 tons of this product per day. The mill employs approximately 360 people. Basically, the waste treatment system consists of two settling basins for wastes having high strength and high solids concentrations followed by a series of five natural ponds through which the entire waste flow from the mill passes. The strong waste presently composes approximately 50 percent of the total waste flow of approximately 20 million gallons per day. Each of the settling basins has a capacity for 12 hours' retention of the strong waste flow under present operating conditions, and one may be operated while the other is out of service for cleaning or repairs. The five natural ponds have a capacity equivalent to five days' retention of the total waste flow. The discharge of treated waste to the Conecuh River is through Gay Lake at a point approximately 3½ miles above the Alabama-Florida State line.

DISCUSSION OF STREAM QUALITY

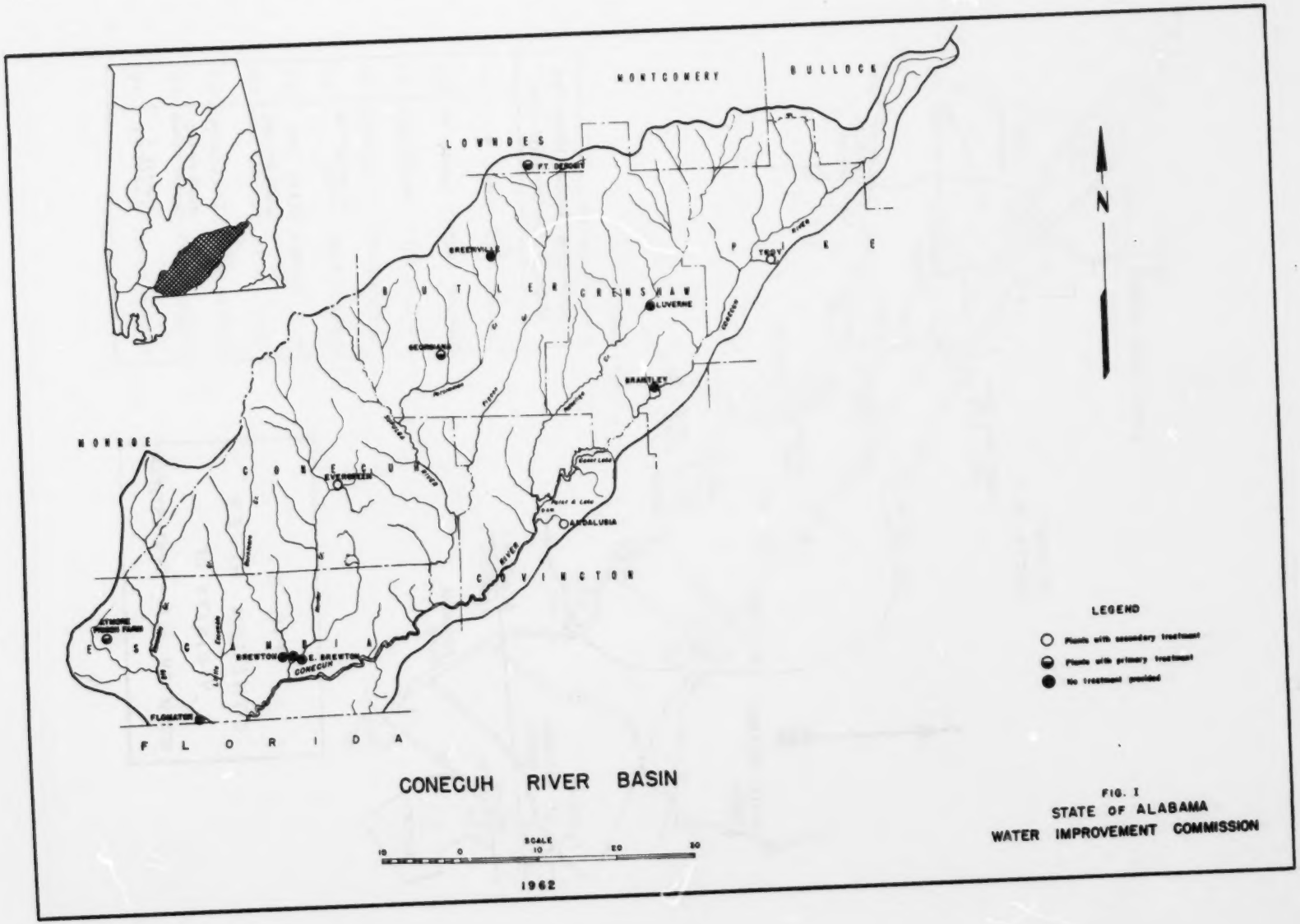
As stated previously, it is the contention of the Water Improvement Commission that allegations of pollution of interstate waters of the Conecuh-Escambia River are not based on established technical facts. The Commission is of the opinion that there is a wealth of evidence and data to support this contention. There is reason to believe that many of the complaints received by the Commission from individuals and groups in Florida, some of which are dated prior to 1957, are influenced in part by factors not related to interstate pollution. It is a documented fact that the public's attention has been directed to Container Corporation of America as a source of pollution of the Escambia River, not only before the mill began operation, but also continuously since it went into production. Newspaper accounts containing statements of officials of wildlife organizations condemning Container Corporation of America of polluting the Escambia River were given prominence by a Pensacola, Florida, newspaper. Resolutions adopted by the Board of County Commissioners of Escambia County, Florida; by the City Council of the City of Pensacola; and letters from sportsmen's clubs accusing Container Corporation of polluting the Escambia River have been widely distributed. All of these public statements have referred to the Escambia River generally and not to a specific portion

of the stream. The impression has been left that Container Corporation was polluting the Escambia River from the state line to the mouth of the stream.

In the following paragraphs the results of various surveys, investigations, and monitoring programs will be discussed. The results of these studies will serve as the Commissions basis for establishing the quality of the Conecuh River in the vicinity of the Alabama-Florida line.

An examination of a map of the Conecuh River Basin, shown in Figure 1, together with the contents of Tables II and III, which lists the sources of pollution on record in the basin, shows that only those waste sources in the Brewton vicinity need be considered in this discussion. On this basis, only the municipal waste from the cities of Brewton, East Brewton, and Flomaton should be considered. By the same token, industrial discharges from Container Corporation of America and the wood preserving department of T. R. Miller Mill Company will be included. Figure 2 includes a map of the Brewton, Alabama - Century, Florida area, together with a table of distances between points of interest in this discussion.

In studies containing an evaluation of the quantity and strength of raw sanitary sewage discharged to streams in the area by Brewton, Alabama, the Commission found in 1956 that the population equivalent (B.O.D.) of sewage discharged was 1,750. [1] The principal outfall enters Burnt Corn Creek at a point twelve miles from the state line and has a population equivalent (B.O.D.) of 1,220. A second outfall from the City of Brewton enters Murder Creek at a point twelve miles from the state line and was found to have a population equivalent (B.O.D.) of 530. The City of Brewton presently has under construction an extensive sanitary sewerage improvement program which includes the construction of secondary sewage treatment facilities. These improvements are expected to be completed in the spring of 1963. The City of East Brewton does not provide treatment to its sanitary sewage, and, in the absence of analytical data, it is estimated that sewage with a population equivalent (B.O.D.) of 1,600 is discharged to Murder Creek at a point twelve miles upstream of the Alabama-Florida line. The City of Flomaton discharges its raw sewage into Big Escambia Creek at a point approximately one mile upstream of the Alabama-Florida line. The estimated population equivalent (B.O.D.) is 1,200. In view of the size of the receiving streams and water use below the sewer discharges, it is difficult to associate pollution from municipal sources with complaints by Florida residents. Limited data are available to evaluate bacterial contamination of the streams as it may affect water usage in Florida. In this connection reference is made to a publication entitled, Stream Sanitation in Florida, which in a discussion of the sanitary quality of Escambia Bay states:



CONECUH RIVER BASIN

FIG. I
STATE OF ALABAMA
WATER IMPROVEMENT COMMISSION

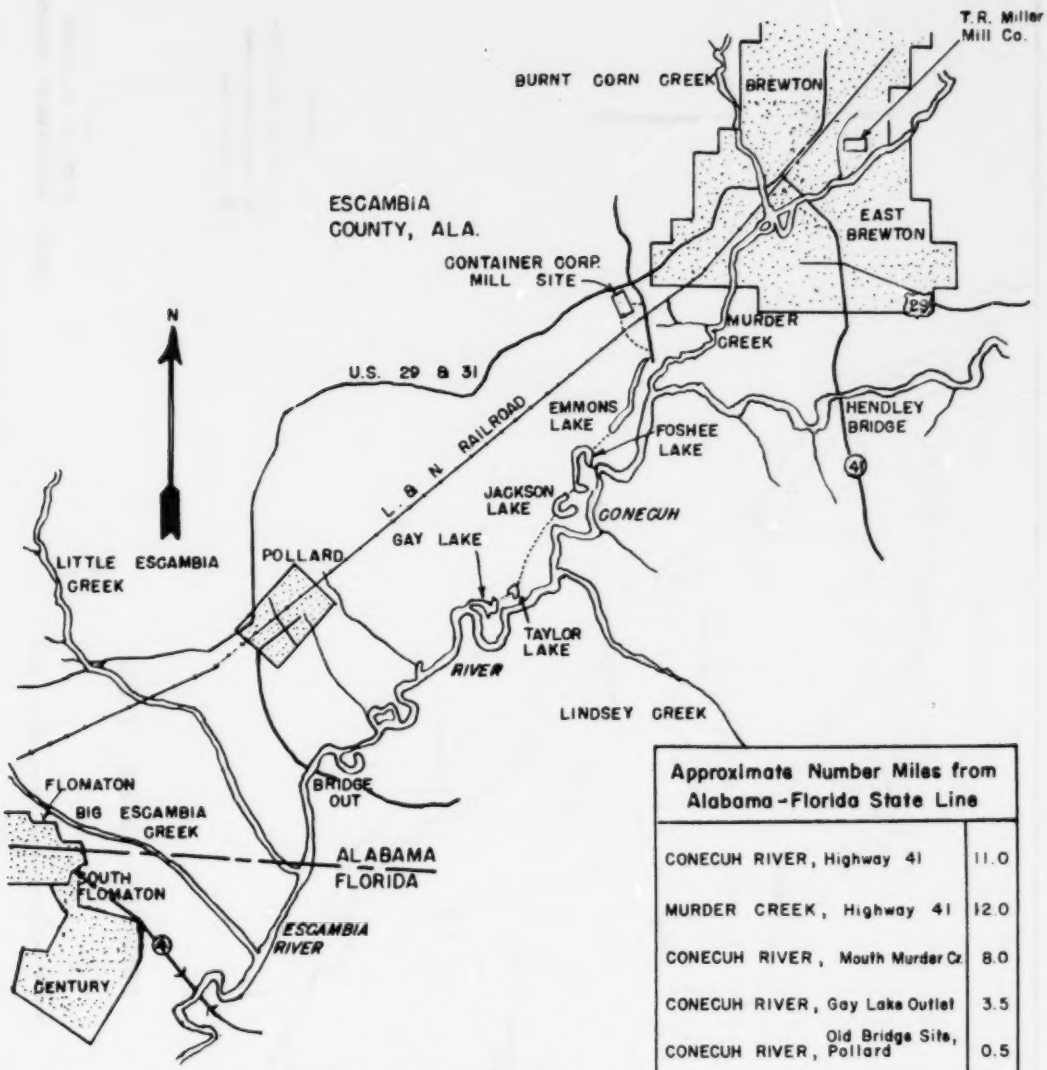


FIG. 2

CONECUH RIVER

VICINITY OF

BREWTON, ALA. - CENTURY, FLA.

Approximate Number Miles from Alabama-Florida State Line	
CONECUH RIVER, Highway 41	11.0
MURDER CREEK, Highway 41	12.0
CONECUH RIVER, Mouth Murder Cr.	8.0
CONECUH RIVER, Gay Lake Outlet	3.5
CONECUH RIVER, Old Bridge Site, Pollard	0.5
ALA.-FLORIDA STATE LINE	0.0
CONECUH RIVER, Mouth of Little Escambia Creek	1.0
CONECUH RIVER, Line Crossing	5.5
CONECUH RIVER, Mouth of Big Escambia Creek	6.0
CONECUH RIVER, Highway 4 at CENTURY	7.0

> "The river (Escambia), at present only slightly polluted from an organic standpoint, carries a considerable bacterial load. At the time of the last survey, Century, with a sewered population of 500, was the only sewered community on the river in Florida. There is undoubtedly some pollution in the river as it is received from Alabama, but the time of flow to Escambia Bay is so great that its effect is not considered important. The sources of the bacterial pollution are not apparent but may be due in the main to surface waters washing into the stream from agricultural areas. The stream is quite turbid from clay soils, and soil bacteria may be largely responsible for the high bacterial content of the upper bay waters." [2]

The principal source of industrial waste discharged into the Conecuh-Escambia River system in the vicinity of Brewton is Container Corporation of America. This company announced its intention to construct a pulp and foodboard mill near Brewton during 1955 and began operations in December of 1957. The site selected had been previously considered by at least two other paper companies, and agreement had been reached by the Water Improvement Commission and the Florida State Board of Health on permissible conditions in the Conecuh-Escambia River system below the point of waste discharge. With the announcement of the company's intentions to construct a mill on this site, consideration by the respective state agencies was re-opened, and Container Corporation was advised early in 1956 of stream conditions which the company would be expected to meet. A series of conferences between representatives of Container Corporation and the Water Improvement Commission resulted in the provision of waste treatment facilities accepted as being capable of protecting water quality in the Conecuh-Escambia River system to the degree expected by the two regulatory agencies.

Following an established practice of the Water Improvement Commission, a lengthy study [1] of the Conecuh-Escambia River system was conducted during September, October, and November 1956 for the purpose of determining the sanitary quality of the river prior to the introduction of waste from the mill. The results of this study would serve as a basis for determining compliance with the conditions contained in the permit to discharge wastes. This comprehensive study revealed the stream to be relatively clean in all respects. Further efforts by the Commission to establish the condition of the Conecuh River prior to operation of the mill included fish population studies carried out in cooperation with the Agricultural Experiment Station, Auburn University, and the Alabama Department of Conservation. Personnel of the Florida Game and Fresh Water Fish Commission were also invited to attend and were provided results of the studies. The

results of the fish population studies conducted in 1957 prior to operation of the mill are included in a publication prepared by the Alabama Department of Conservation. [3] Recognizing its responsibilities in regard to water pollution control, Container Corporation retained the Institute of Paper Chemistry, Appleton, Wisconsin, for the purpose of conducting biological surveys of the Conecuh-Escambia River. The first of a series of surveys was conducted during June 1957, and the results are considered to establish water quality in terms of biological parameters prior to mill operation.[4]

On July 3, 1957, the Water Improvement Commission issued to Container Corporation of America a waste discharge permit setting forth water quality conditions which the Water Improvement Commission and the Florida State Board of Health had agreed must be met by the permit holder. This permit is subject to the following conditions:

1. The concentration of dissolved oxygen in the Conecuh River shall not be less than 4.0 parts per million at any point below the effluent discharge after reasonable opportunity for dilution of the effluent with the flow of the stream.

2. The effluent shall not contain toxic materials in concentrations likely to have a deleterious effect upon humans, wildlife, fish, livestock or reasonable use of the receiving stream.

3. The effluent shall not contain materials that will lead to the formation of sludge banks in the receiving stream or materials that will float and cause unsightly conditions.

4. Substances contained in the effluent that are likely to impart a foreign taste to fish shall be limited to concentrations below the recognized tolerance level.

In view of the number and apparent sincerity of complaints received in the early part of 1958 regarding alleged pollution of the Conecuh River from sources in Alabama, it was deemed advisable by representatives of the water pollution control agencies of Alabama and Florida to resurvey the river in order to determine any changes in the condition of the water since the earlier survey made by Alabama during September - November 1956. [1] It was agreed that the resurvey would be conducted at the same time of year and duplicated in every manner except for additional laboratory determinations and would include all of the Conecuh-Escambia River from Brewton, Alabama, to U. S. Highway 90. The studies started on August 4, 1958, and were completed on August 22, 1958, and included biological and fish population surveys in addition to investigations of biochemical, chemical, and physical characteristics of the stream. The results of the studies were published in Joint Stream Sanitation Study, Conecuh-Escambia River System, August 1958,

Alabama Water Improvement Commission and Florida State Board of Health. [5] Copies of this report were widely circulated in the area. Conclusions of the report reached after consideration of all data collected during the study period stated:

"1. Chemically, biochemically, and biologically, the river is a normal healthy stream from Brewton, Alabama, to Station P-2, approximately 53 miles below Brewton.

2. Minor to moderate chemical, biochemical, and biological changes exist below Station P-2 to P-5 (at U. S. Highway 90), due to the accumulations of the long stringy material of a chemical rather than a biological nature."

This comprehensive report included the results of fish population studies conducted by the Florida Game and Fresh Water Fish Commission in 1958 [12] and contained comparisons of 1957 and 1958 populations. The conclusion reached by the Florida Game and Fresh Water Fish Commission is included as Appendix B in the joint study and stated:

"The Conecuh-Escambia River Surveys in 1957 and 1958 do not indicate a significant change in the fish population of the river."

It is particularly significant to note that tests for mercaptans and sulfides, which are specifically indicative of paper mill pollution, were performed on a representative number of samples from selected stations by both agencies. The presence of these contaminants, when found in sufficient concentrations, is generally believed to cause objectionable tastes in fish. Analytical determinations for these materials were performed on samples from stations on the Conecuh River at the mouth of Little Escambia Creek and extending down the Escambia River to the bridge at U. S. Highway 90. All tests performed by both agencies were negative. In the joint study under the portion headed "Florida Discussion," it was stated:

"All of the mercaptan and resin acid determinations were negative at the Century Sampling Point and therefore paper mill waste that could have caused an off taste (in fish) was not found below this point."

A study of biological conditions in the river system was also performed during August 1958 by the Institute of Paper Chemistry under a contractual arrangement with Container Corporation. Much of the field work required for this study was done in association with the biologist from the Florida State Board of Health. While the results of the study prepared by the Institute of Paper Chemistry for the company were not published in the joint study, the findings were made available to both agencies. [6] Among other things the report stated:

"1. No change in the water quality of the Conecuh-Escambia River downstream from the mill outfall is apparent since the mill has been operating. Populations of sensitive animals noted this year compare favorably with those noted during 1957."

"6. The operation of the co-operator's pulp and paper mill and the associated waste treatment has resulted in the addition of various treated wastes to the Conecuh River System. All aspects of this study indicate that these wastes have not significantly altered the biological complex inhabiting downstream locations."

Shortly after the 1958 joint study, Container Corporation was requested by the Commission to inaugurate a routine waste and stream monitoring program. The results of these tests are submitted to the Commission periodically and have been made available to this conference. Dissolved oxygen data accumulated by the company, as well as dissolved oxygen data obtained by others, are presented graphically in Figures 3 and 4 and show that the levels as recorded at the Century observation point have not fallen below or near the minimum level specified in the permit given the company. The monitoring program initiated in 1958 by Container Corporation at the request of the Commission is a continuing program, and the Commission feels it is necessary to insure compliance with the conditions contained in the permit.

Since 1958, Container Corporation has continued its contractual arrangement with the Institute of Paper Chemistry calling for annual biological studies of the Conecuh-Escambia River System. Field work for the 1959 study was carried out during June, with its findings being reported to the company in Progress Report Three. [7] In part, this report concluded:

"6. All aspects of this study indicate that stream conditions downstream from Container Corporation of America's waste outfall are similar to those noted upstream from this area and that no significant changes in the river water quality take place as a result of the discharge of treated pulp and paper mill waste."

"7. Stream conditions as evidenced by the biological complex are essentially unchanged from those noted for 1957 prior to mill completion and in 1958 after the first year of operation."

A report on findings of the 1960 biological study performed during June and early July by the Institute indicated for the first time the presence of slime growths on submerged debris.[8] The report included the following observation:

"Immediately downstream from the Gay Lake outfall (Station 4) growths of the filamentous bacterium, Sphaerotilus, occurred on woody debris along the right bank (outfall side) of the river. Filaments from 2½1/2 to 4 inches long were present at the time of this study.

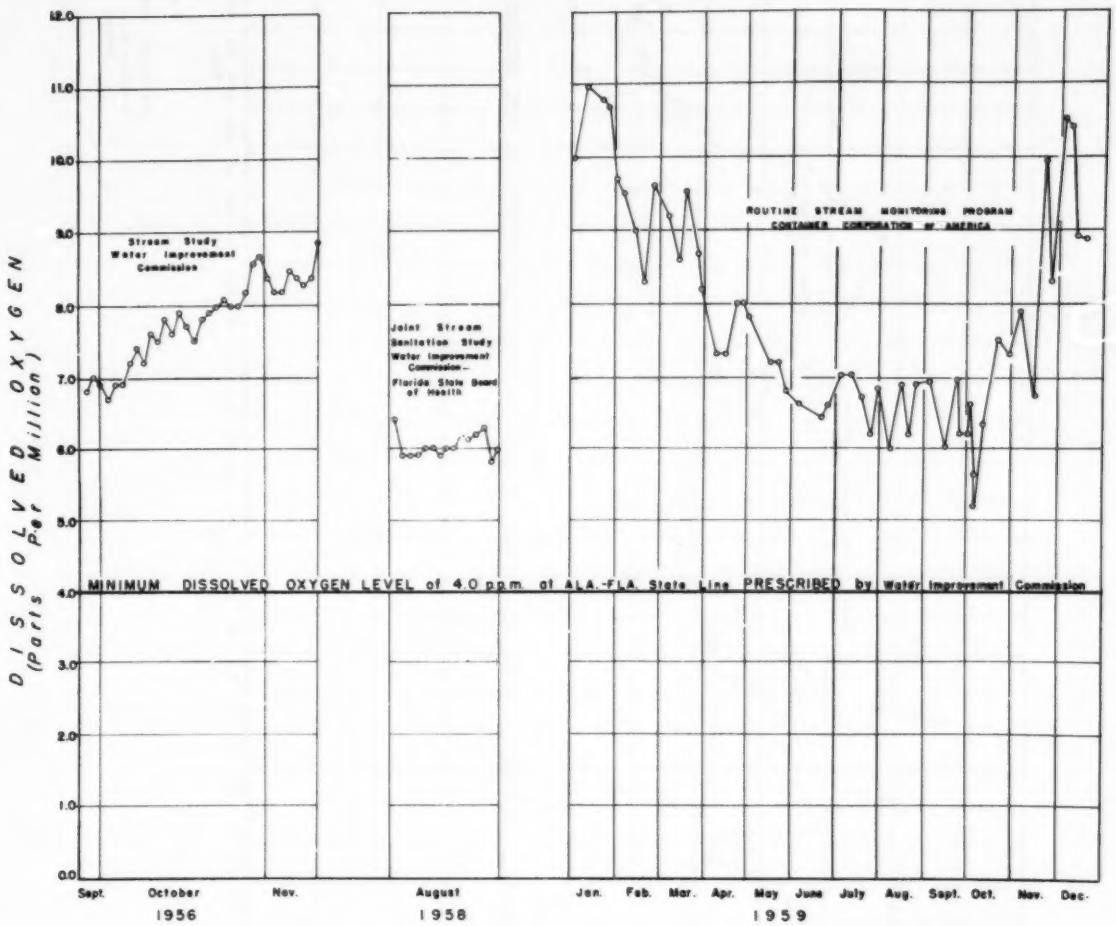


FIG. 3

DISSOLVED OXYGEN RESULTS
Escambia River, Highway 4 Near
Century, Florida

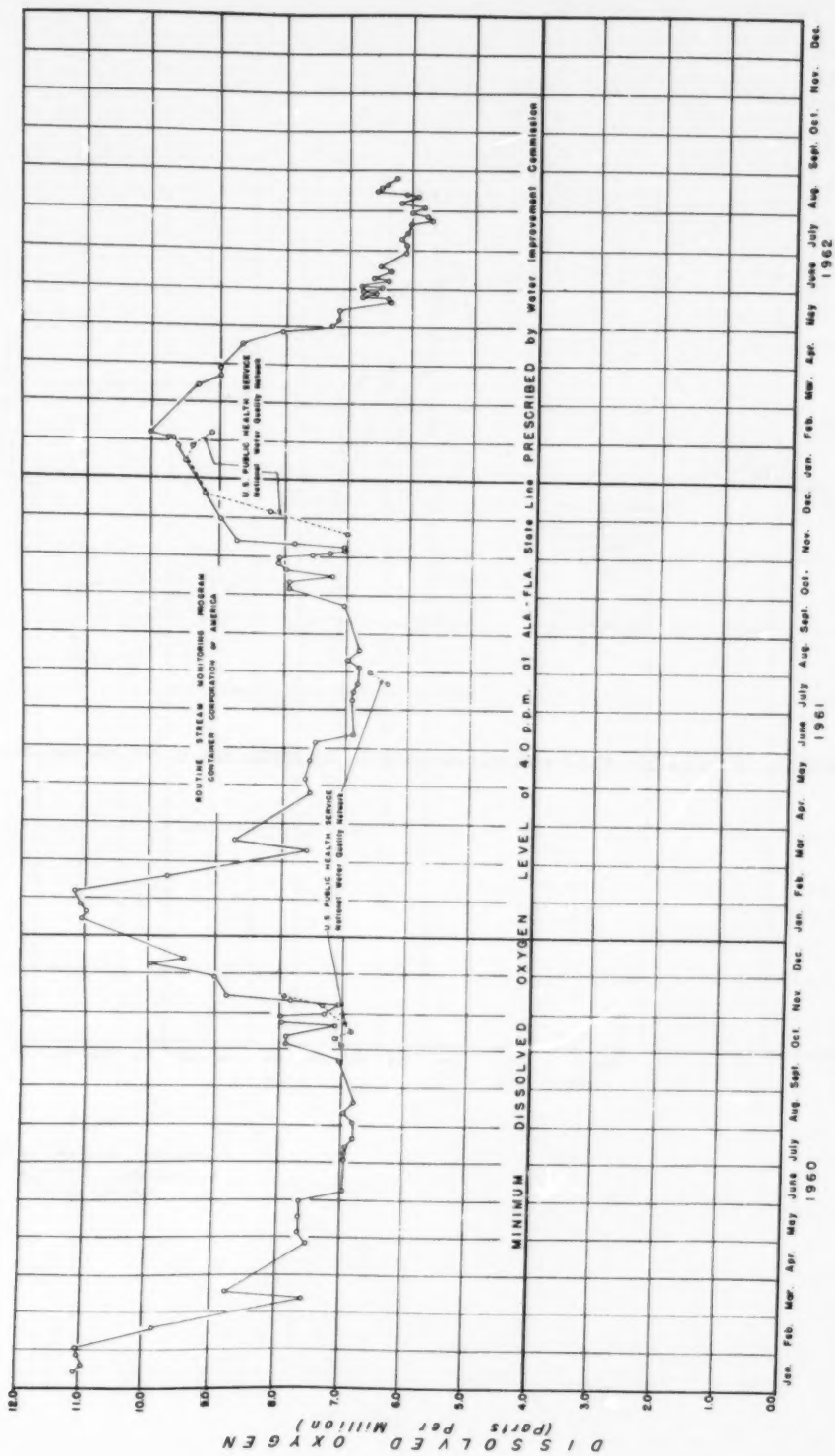

DISSOLVED OXYGEN
(parts per million)
MINIMUM DISSOLVED OXYGEN LEVEL of 4.0 p.p.m. of ALA.-FLA. State Line PRESCRIBED by Water Improvement Commission
ROUTINE STREAM MONITORING PROGRAM
CONTAINER CORPORATION OF AMERICA
U.S. PUBLIC HEALTH SERVICE
National Water Quality Network
Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.
1960
1961
1962

FIG. 4
DISSOLVED OXYGEN RESULTS
Escambia River, Highway 4 Near
Century, Florida

Concentrations of Sphaerotilus were reduced as the distance downstream increased until at a point estimated to be midway between the mouths of the Little and Big Escambia Creeks and in the vicinity of a new pipeline crossing, macroscopic accumulations of this material disappeared." " ... the growths encountered during late June and early July 1960 have not apparently been significantly detrimental to the aquatic resources of the Conecuh River."

The field work for the 1961 Institute report, Progress Report Five, was done early in August 1961.[9] Essentially, this study reported that the slime growth first observed during the 1960 report was found further downstream. The presence of slime conditions was reported this year as far downstream as a point where an aerial pipeline crosses the Conecuh River, a distance of some 7 to 8 miles below Container Corporation's waste discharge at Gay Lake. The following is taken from the 1961 Institute report on biological conditions in the Conecuh River:

"Although the sensitive segment of the total biological complex has been adversely affected downstream from Gay Lake, no significant changes were apparent in the tolerant portion of the benthos. Ordinarily, the presence of unstabilized organic material results in an increase in the more tolerant animals. Apparently, the concentration of organic material, principally carbohydrates, in the Conecuh River below Gay Lake, was sufficient to promote the growth of Sphaerotilus, but not great enough to result in an increase in tolerant animals. This fact also indicates that the adversity causing changes in the intolerant benthic populations is related to the mechanical or physical effects of slime growths rather than the reaction to a decreased dissolved oxygen content or to toxicity."

While the results of the 1962 study have not been published, a preliminary statement regarding the findings of the field work carried out during the third week of July 1962 has been prepared and states in part:

"Item 4. Downstream from Gay Lake the presence of pulp and paper making waste in the Conecuh River results in moderate amounts of a gelatinous macrobiological growth known as Sphaerotilus. This material is found near both banks of the river approximately 3/8 mile downstream from the Gay Lake outfall and extends downstream in decreasing quantities as far as the mouth of Big Escambia Creek, a distance estimated to be 6.5 (9.5) stream miles." [10]

On the basis of the results of six annual biological studies of the sanitary quality of the Conecuh-Escambia River, it has been found that the only significant change in water quality since operation of the mill began has been due to physical changes resulting from slime growths on submerged debris extending some 9.5 miles below the Gay Lake outfall or some six miles into the State of Florida.

The second source of industrial waste discharged into the Conecuh-Escambia River system in the vicinity of Brewton is the wood treating department of T. R. Miller Mill Company. This waste enters Murder Creek from a small branch at a point approximately 13 miles above the Alabama-Florida line. There is an intermittent waste discharge from this operation, and no information is available regarding the volume of waste released. The company employs ponding and controlled discharge as a disposal practice. It is recognized that in sufficient concentrations certain constituents of the waste may be toxic to fish life. Circumstances leading to a major fish kill that occurred in Murder Creek on August 12, 1961, below the company's waste outfall have not been established, although an investigation conducted by the Commission indicated, at least circumstantially, that wastes from this operation were responsible for the kill. [13] The company is now well aware of the potential effects its waste can have on fish life, and it is believed that adequate preventive and precautionary measures have been taken to prevent its reoccurrence. In this connection, it is interesting to note the observation contained in the preliminary statement prepared by Container Corporation's stream consultant following the July 1962 study. It said in part:

"The significant reduction in the number of invertebrate animals in that section of the Escambia River between Century, Florida, and Molino, Florida, noted in the biological studies made during late August 1961 after a serious fish kill on the Conecuh-Escambia River has been eliminated. Apparently the intermittent discharge of toxicants to this portion of the river has not occurred since late last year. An excellent water quality has been present since late in the summer of 1961." [10]

In a report [17] prepared by the Fisheries Division, Florida Game and Fresh Water Fish Commission, made available to the Water Improvement Commission on June 11, 1962, it is stated that a "light" fish kill occurred in the Escambia River in the vicinity of Century, Florida, on June 15, 1961. The report states:

"The kill was light, mostly trash fish but some adult game fish were also killed. Dead fish were observed above and below the state line. The total effect on the river seemed to be light."

Inasmuch as this kill was first brought to the attention of the ssion in a report transmitted by the Florida State Board of Health gust 30, 1961, we are not in a position to comment on its cause iew of the time delay.

During the latter part of 1960 the U. S. Public Health Service in cooperation with the Florida State Board of Health established a National Water Quality Network station at the highway bridge on Florida Highway No. 4, near Century, Florida. This station, one of over 75 in operation throughout the country, was established under provisions of Section 4 (c) of Public Law 660 to " ... collect and disseminate basic data on chemical, physical, and biological water quality insofar as such data

or other information relate to water pollution and the prevention and control thereof." A station consists of a pump set to operate at pre-determined intervals in order to obtain a representative stream sample. The sample collected is examined in regard to the presence of (1) radioactivity, (2) plankton and bacteria (coliform) populations, (3) organic chemicals, (4) biochemical, chemical and physical constituents, and (5) trace elements. The frequency of examination of the samples varies. The samples are examined, for the most part, by the Public Health Service laboratories in Cincinnati, and the results are made available to the various local, state and Federal agencies concerned. Since October 1960 a limited number of samples, collected at periodic intervals, have been examined from this station. This data, as is customary, has been transmitted without comment to the Water Improvement Commission.

An examination of the data [11] collected by the Public Health Service from the National Water Quality Network station located near Century by Commission personnel reveals that it is indicative of a relatively clean stream and that these data substantiate those collected by other agencies and discussed above.

There are a number of producing oil wells located approximately two miles west of Pollard, Alabama. The Commission has recognized that these wells represent a potential source of pollution, in the form of brine and oil losses, that could be contributory to the Conecuh-Escambia River system. During July and August 1961 a study[14] by the Commission of Little Escambia Creek and other streams draining the Pollard Oil Field demonstrated discrepancies in waste disposal practices of one of the major operators. The effects of inadequate control of oil field wastes were confined to the immediate vicinity of the waste source and were not definable in the Conecuh River. Inspections by personnel of the State Oil and Gas Board [15] in December 1961 and by a representative of the Commission [16] in September 1962 revealed that deficiencies in waste disposal previously observed had been corrected.

SUMMARY AND CONCLUSIONS

The Alabama Water Improvement Commission is keenly aware of its responsibilities as they relate to the preservation of water quality in the Conecuh River as it enters the State of Florida. The Commission feels that it has demonstrated its awareness by way of conferences, field studies, investigations, and surveillance programs, the results of which are discussed in the preceding paragraphs. It is the Commission's contention that it has discharged its responsibilities in this connection. At the same time, the Commission has an open mind and is receptive to the presentation of tangible evidence to the contrary.

Prior to this conference there has been no evidence of violations of the permit held by Container Corporation, the contributor of the

largest quantity of industrial waste in the Brewton area. It has, however, been established by Container Corporation's stream consultant and confirmed by the Commission's staff that slime growths on submerged debris are present in the Conecuh and Escambia Rivers in decreasing quantities as far downstream as the mouth of the Big Escambia Creek. The Commission concedes this change in the physical character of the stream as described in this statement.

The fish kill which occurred on Murder Creek on August 12, 1961, and for an undetermined distance in the Conecuh River, together with the Commission's report, is a matter of public record and was most unfortunate. It is felt that the cause of this kill is not a continuing problem and that all reasonable steps have been taken to prevent its reoccurrence.

The principal water uses of the Conecuh-Escambia River in the vicinity of the Alabama-Florida state line are fishing, boating, to a limited extent, stock watering, and perhaps irrigation. The Commission submits that evidence of pollution affecting these uses or any other reasonable use to the detriment of the health and welfare of the residents of Florida has not been established.

References

1. Stream Study, Conecuh-Escambia River, September - November 1956, Water Improvement Commission.

2. Stream Sanitation in Florida by Smith, Wakefield, Bevis, and Phelps, Florida Engineering Series No. 1, 1954, P. 120.

3. Surveys of Alabama Streams, 1957, Agricultural Experiment Station, Auburn University, Auburn, Alabama.

4. A Biological Survey of the Conecuh-Escambia Rivers in the Vicinity of Brewton, Alabama - 1957, Progress Report One to Container Corporation of America, Institute of Paper Chemistry, Appleton, Wisconsin.

5. Joint Stream Sanitation Study, Conecuh-Escambia River System, August 1958, Alabama Water Improvement Commission and Florida State Board of Health.

6. A Biological Survey of the Conecuh-Escambia Rivers in the Vicinity of Brewton, Alabama - 1958, Progress Report Two to Container Corporation of America, Institute of Paper Chemistry, Appleton, Wisconsin.

7. A Biological Survey of the Conecuh-Escambia Rivers in the Vicinity of Brewton, Alabama - 1959, Progress Report Three to Container Corporation of America, Institute of Paper Chemistry, Appleton, Wisconsin.

8. A Biological Survey of the Conecuh-Escambia Rivers in the Vicinity of Brewton, Alabama - 1960, Progress Report Four to Container Corporation of America, Institute of Paper Chemistry, Appleton, Wisconsin.

9. A Biological Survey of the Conecuh-Escambia Rivers in the Vicinity of Brewton, Alabama - 1961, Progress Report Five to Container Corporation of America, Institute of Paper Chemistry, Appleton, Wisconsin.

10. Personal communication from Robert F. Balch, The Institute of Paper Chemistry, Appleton, Wisconsin, to Dr. John P. Weidner, Technical Director, Container Corporation of America, Brewton, Alabama, July 23, 1962.

11. Results of Stream Determinations, 1960, 1961, 1962, National Water Quality Network, Escambia River at Century, Florida, U. S. Department of Health, Education and Welfare, Public Health Service.

12. Conecuh-Escambia River Survey, August 1958, Florida Game and Fresh Water Fish Commission.

13. Report of Investigation, Fish Kill in Murder Creek and Conecuh River near Brewton, Alabama, August 15, John M. Bolton, Assistant Sanitary Engineer, Alabama Water Improvement Commission.

14. Study of Oil Field Wastes, August - September 1961, Alabama Water Improvement Commission.

15. Report of Inspection, Pollard Field, December 6, 1961, H. Gene White, Petroleum Engineer, State Oil and Gas Board.

16. Report of Inspection, Pollard Oil Field, September 19, 1962, John R. Henson, Assistant Sanitary Engineer, Water Improvement Commission.

17. Effects of Interstate Pollution Affecting North Florida Streams, June 8, 1962, Florida Game and Fresh Water Fish Commission.

THE CHAIRMAN: Let's see if we have any comment first before we go on.

MR. THOMAN: No comments at this time.

DR. GILL: (Shakes head negatively.)

THE CHAIRMAN: I would like to say that I think this is an excellent report.

DR. GILL: I was going to say that I think it is rather comprehensive and I think that from the amount of work that was done on this indicates that we have been progressing all the time. As indicated we stand ready to be told what we need to do.

THE CHAIRMAN: Thank you, Dr. Gill, there is one point I would like to make and I hope for the people in the audience it won't be too technical. This is the question of philosophy that I think you properly pointed out. That is that this Sphaerotilus is a situation which is changing the physical characteristics and no doubt you are going to keep watching that, is that correct?

MR. CROCKETT: Correct, sir.

THE CHAIRMAN: Now, there is a part of this report on page 17 and it is not your statement but from the Institute Report of 1961. I would like to point out that the Sphaerotilus growth is maybe contributory to the growth of the slime but it is not sufficient to increase the tolerant animals in the biological complex of the stream, that is, the life in a stream, fish and other organisms in a stream, and that the material coming out may increase the growth of Sphaerotilus but hasn't affected these organisms. Then it says, and I quote here, "This fact also indicates that the adversity causing changes in the intolerant benthic populations is related to the mechanical or physical effects of slime growths rather than the reaction to a decreased dissolved oxygen content or to toxicity." Now I would submit, at least from my point of view, that if pollution adversely affects something by creating the growth -- increased growth of Sphaerotilus and the Sphaerotilus affects other growths because of mechanical or physical effects that this would be just as much an effect of pollution. I think this is just as much in the philosophy and I don't think there is any disagreement. This isn't yours, by the way, this is a quote of someone else's.

MR. CROCKETT: We have quoted directly from the Report of Container Corporation itself and I think, in my opinion, this is generally a recognized fact that Sphaerotilus growth can become so heavy that they would act as a deterrent to the more intolerant species, yes.

THE CHAIRMAN: That's right. Now, this may be a result of pollution. If pollution will increase Sphaerotilus and Sphaerotilus in turn will have an adverse effect on the organisms in the stream and would interfere with the life of the stream, I think it is pretty generally accepted that this would be considered a damaging effect of pollution. Thank you, Mr. Crockett.

I think we might -- We have been going quite a while so perhaps we can recess for fifteen minutes.

MR. CROCKETT: I would say there are six persons who are present who would like to present their cases.

THE CHAIRMAN: There may be others.

MR. CROCKETT: Oh, yes.

THE CHAIRMAN: We will have to recess in order to determine how many we are going to have. Now, here is what we can do and perhaps the audience will help make this decision. I think we have had about as much as most people can absorb in one session so we can have a fifteen minute recess and then go on and run 'til about 1:30 and we will be through or we can adjourn for lunch now and reconvene at about a quarter 'til one. I don't know what you would consider desirable.

DR. GILL: Well, I presume that many of the people in the audience are here from some distances and probably a fifteen minute recess would be better then we could go on. I don't think there is anything lengthy about the statements of most of these folks. I would suggest a recess for fifteen minutes to at least see how long it will take us to wind up.

THE CHAIRMAN: We will recess for fifteen minutes. If you people from Florida and Alabama will be in touch with your respective State Conferees here so they can make a list and we can go on from there.

We stand recessed for fifteen minutes.

(Whereupon, there was a recess.)

THE CHAIRMAN: We will reconvene. At this time I would like to call on Mr. Dave Lee who will call on people from Florida who wish to make a statement. Those who do should come up to the desk here and announce their names and affiliation and then proceed with their statements. Mr. Lee.

MR. LEE: We have a Mr. Matt Whisenhunt who said he would like to give his views on the Escambia River. Matt.

MR. WHISENHUNT: I am Matt Whisenhunt, Regional Manager of the Florida Game and Fresh Water Fish Commission covering some sixteen counties here. I don't know that I should be the spokesman, however, most of our personnel are sick in bed today and I was asked to come over and represent the Commission at this meeting.

I did note in some of the earlier statements that there was no interference at all with legitimate water use of the Escambia River. Legitimate water use being boating, fishing, and for cooling by industries. We have another use that I don't know whether it was considered or whether it would be illegitimate, which is the manufacture of a strong drink up in that area. We have had no complaint from the moonshiners up there about the quality of the whiskey but I imagine they would be a little bit reluctant to express themselves.

We have had numerous complaints about the decline of fishing since the installation of the American Container Corporation. The boat camp operators aren't renting as many boats as they did. There should be a correction. I think first it was mentioned that there were some hundred boats for hire on the Escambia River and we have just checked out records and we have licensed this year 260 boats in that area that are for hire not counting the private boats which on weekends sometimes run forty to fifty per camp per day that are launched in that area. So there is considerable fishing use of this particular area of the Escambia River.

One of the items that has been mentioned is the biological complex which I think the reports to this time have been rather superficial. Now, it was mentioned that the caddisfly and mayfly larvae were eliminated and this is a very important link in the food chain of fish. The mere fact of the elimination of the caddis and mayfly larvae also will indirectly limit the fish population. The reports that were submitted apparently had indicated, and we have had enough experience in our fish chain work to know, that even though not directly killing the fish directly by pollution that by killing their food supply it will limit the fish population.

The kills that occurred in 1961 and we are not pointing an accusing finger, all we know is that we had some dead fish. It is not too hard to determine whether a fish is dead or not. At the same time these stations that were mentioned, that is, the one on the bridge at Century, Florida, the pump was broken down at the time and we did not get the information from that station that we would have liked to have had at the time we had the fish kill. The information was not available. So I think that is significant and I agree with the gentlemen here that those were accidents and probably those could be corrected. I do think at this time that there is a certain indication that there is a need for additional study. A need right now, for example, to have another fish population study to see if there has been any change since the last one in 1958. We need that very badly at this time. We should also get away from this superficial idea and these false statements that the biological complex has not been affected because I can't believe that. When you get the appearance of the slime extending further and further down the river it indicates that the cause is cumulative and it is a gradual deposit over a period of time, and as time goes on it is going further and further down the river. This we feel needs study.

There was a statement that fishing was better this past year than it had been in any previous year. This was taken -- If it was taken from my personnel it was taken out of context by statements that the wildlife officers in this county made that the fishing had gotten worse and worse since the installation or since the operation of the American Container Corporation. However, in the spring of 1962 there was a lot of rain and a lot of water and we had the best fishing we had experienced since the Container Corporation went into operation. It was better during that high water period but as soon as the water got low again the fishing declined again and it is going down and down now. You

don't hear it but we get it from our boat camp operators. This year we have some boat camp operators that own quite a number of boats but they only licensed a few because they didn't have the traffic to warrant licensing more than ten or twelve boats at a camp but that has happened this year. Now, to say that there is no interference with the legitimate water uses -- I can't say whether this is doing it or some other source is doing it but we do know that fishing has declined and is declining ever since the American Container Corporation went in. We do not say this is the entire cause or whether it is a complex of causes and we are not in a position at this time to say one way or the other. I think in a few years with the proper studies we will be in a better position to give the overall effect. But I do say that there are certain indications that they could be responsible.

MR. LEE: I think that about sums it up.

THE CHAIRMAN: Wait a minute. Are there any questions?

MR. THOMAN: Well, I have one question that you have apparently answered. There have been no more fish studies or fish population studies since 1958?

MR. WHISENHUNT: No, there have been none. We will have one in June of '63. We could not have one this year but we will have one in June of '63.

THE CHAIRMAN: I think we have, if I might say, this becomes a question that we have to show two things here. One, that the fish population study would have to show a causal relation to a pollution source if we are going to find out. The first thing that must be done is that the fish count has to give an indication that the population has decreased. The biologists have gone over this, as I see it, and their opinion is that the caddisfly and mayfly decrease does not have a direct effect on the fish population. The point that you make, and this is a well taken point, that any break in the chain of life very well may have had an effect on the fish. This may be something that after this conference would be one of the things to look into since we have an area of conflict. I think what we are dealing with here on the stream, and we can all agree on this, is a physical description of what happened and on a description of this type I think all reasonable men can agree and there shouldn't be any real difference of opinion. One, to find out if there is a decrease in the fish population and, two, to show the causal relationship. You are raising the question whether these statements made in our report are as definitive as they are thought to be and I think this is something that we may bring up in our discussion.

MR. THOMAN: May I make one point here. Our report refers to caddisflies and so forth missing in the vicinity of the outfall. The statement is made that from Century, Florida, down to Molino, Florida, that there was in 1962 a balanced biological population similar to that of Brewton and that would, I believe, encompass most of the area of the stream where these fish camps are located.

MR. WHISENHUNT: That may or may not be true I don't know what it is above Brewton or below at this time. I would like to correct one thing. If I said that the fish population was down I would like to correct that. I think I said, and if I didn't I intended to, that the fishermen are reporting less catch as a result they are renting fewer boats. That was the point I was trying to make not that I have any data at this time to support that there is a less fish population. I am taking the report that we get from fishermen saying that they are not catching anything and they then are not going to rent Mr. Smith's boat and go fishing.

THE CHAIRMAN: Yes, right. Now, I think the point of view of the Federal Government is that we have to proceed on facts and on scientific surveys. I don't discount the reports of the fishermen or lay people in this. I think the crux of every one of these situations is that you will find that the feelings of the people using these streams are important. I think both the scientific findings and the lay opinions are equally important and one without the other is not sufficient and I do think that we need that before we can make a judgment. I think there has to be some kind of finding that the fish, in fact, are declining if that is so. The point that Mr. Thoman makes is that unless the cause happens in one state and affects people in another state then the Federal Government has no interst. To be specific here, if there is a fishing decline in Alabama from sources in Alabama it is no concern of ours. If it occurs in Florida again that is not our concern. In other words, we have to have two factors: One, does it cross the State line, and two, is there a relation between a pollution discharge and the fish decline, if there is one, it must go across the State line, however.

MR. WHISENHUNT: One thing I would like to bring out that is significant here. I hope to have the opportunity to go over these reports with a fine-toothed comb. I would like to have had them before this meeting to have gone over them.

I would like to say that we will, if the information presented to us gives any indication of fault, study it carefully.

I do know that if I were American Container Corporation and I were paying a firm to do a biological survey for me that I would certainly expect that survey to be slanted in my direction. I don't say that it has happened but I would certainly expect a favorable report if possible.

I don't say that it has happened but I do know that conditions do exist and have happened in the past. I certainly want to give this to our technical people and I would like for them to have an opportunity to go over this and I certainly will get a reply.

THE CHAIRMAN: May I ask you just one question, Mr. Whisenhunt? How far do the fish in the Escambia River ordinarily travel? In other words, if there were a deleterious condition, say in Alabama, would this conceivably affect the fish population in Florida or do the fish travel that distance or do they stay within limits?

MR. WHISENHUNT: The fish wouldn't travel that distance but the pollution would travel that distance and would affect them in Florida. And, certainly, the fish would be perfectly free to swim up the river. Now, whether they do or not I don't know, but I am sure we have that information. We have tagged fish for a number of years and watch movements and so forth as well as fish life-span and that sort of thing. We have been doing that.

THE CHAIRMAN: I think in view of the statements made here, again taking them at face value, that conditions are relatively normal in the State of Florida. I think it might be worth-while, however, to look into these problems.

MR. WHISENHUNT: Thank you, Mr. Stein.

MR. LEE: We have one other, Mr. Chairman, a Mr. Smith, a boat camp operator but he says he is scared of that thing up there so I guess that is all.

DR. GILL: We have a few people that we want to speak very briefly and it is really a compilation of some of the things we have said. I would like to call, first of all, if I may, on the Honorable Phillip T. May, the Mayor of Brewton. Mr. May, I wonder if you could tell us just briefly what Brewton is going to do about its sewerage problem up there.

MR. MAY: Gentlemen, my name is Phillip T. May and I am Mayor of the City of Brewton, Alabama. It has been with much interest that I have listened to this hearing and I have enjoyed it very much and I want to express my appreciation for the opportunity of a hearing before you.

The City of Brewton has been mentioned as one of the contributors of sewage pollution in the Conecuh River. This river is the Conecuh in Alabama and when it reaches the Florida line is the Escambia.

The matter of sewage treatment has been under consideration and study by the City of Brewton for a number of years. You will be, I am sure, quite interested to know that the City of Brewton signed a construction contract on July the 19th, of this year, that's 1962, in the amount of approximately $490,000 for additions to and improvement of our sewerage system. This project includes the construction of a 37 acre sewerage oxidation plant, which is a stabilization pond, and this will provide complete treatment for all our sewage. Construction of these improvements is progressing very satisfactorily and as of this date this project is approximately 35 percent completed. Thank you.

THE CHAIRMAN: Any questions or comments?

(No response).

DR. GILL: Then we have a representative from East Brewton. The Mayor was unable to be here but I believe Mr. Douglas, the City Clerk, is with us. Mr. Douglas, if you could, tell us what East Brewton has got in mind.

MR. DOUGLAS: Gentlemen, my name is Harold Douglas and I am City Clerk of the City of East Brewton, Alabama. Mr. L. J. Ellis, the Mayor, sends the word that he is sorry he couldn't be here at this time to discuss the sewerage facilities. I am pleased to be able to tell you that the City of East Brewton has employed a consulting engineer and instructed him to make an engineering study of our sewage treatment needs and to make appropriate recommendations. We expect to receive the report from our engineers during the next few months and at this time we will be in a position to note what our sewerage needs are.

It is the intention of the City of East Brewton to proceed with construction of the needed sewage treatment facilities as soon as we possibly can.

DR. GILL: Thank you, Mr. Douglas. That seems to take care of Brewton and East Brewton. Now, the only other source of municipal sewage, I believe, that was mentioned was Flomaton. The Mayor of Flomaton, I believe, is here. The Honorable L. D. Weaver.

MR. WEAVER: Gentlemen, I am L. D. Weaver from Flomaton, which is quite a bit smaller than Brewton or East Brewton. We will say that our sewerage system has been under discussion for a number of years and we realize that probably not too far in the future we will be able to do something about it. But the expense that it takes to take care of that sewerage system is something that a small community doesn't find every day. So when the opportunity presents itself whereby we can get a hold of some finance I think we will be very much interested in doing something about our sewage.

DR. GILL: How many people have you got in Flomaton?

MR. WEAVER: Well, they cheated me out of 254 here today, because they only gave me 1200 and after I got to studying about it I said, "Well, maybe they are right." Because since I have been in office we have extended the city limits to an area that has no sewerage in it and it is altogether septic tanks so I will have to accept the 1200 and say nothing about it.

DR. GILL: The sewered population is about 1200.

MR. WEAVER: You are right.

DR. GILL: All right, we have two or three other people I would like to call on for a brief statement. Dr. John P. Weidner, who is Technical Director of the Container Corporation. Dr. Weidner.

DR. WEIDNER: Dr. Gill, the Container Corporation of America is fully aware of its responsibilities for the water quality in the Conecuh-Escambia Rivers. Container Corporation is aware of these requirements for the disposal of wastes in the Conecuh River prior to its location on the site in Brewton, Alabama, for its pulp and paper mill.

A conference was held between officials of the Container Corporation and representatives of the Alabama Water Improvement Commission and the Florida State Board of Health shortly after Container announced plans to construct a mill at Brewton. An agreement was obtained upon the water quality criteria that the company would be expected to meet in the Conecuh River within Alabama and the Escambia River within Florida.

Continuing conferences between Container Corporation and the Alabama Water Improvement Commission resulted in a determination of waste treatment facilities necessary to accomplish the objectives established for water quality in the two rivers. Plans were submitted for these waste treatment facilities to the Alabama Water Improvement Commission and a permit to discharge such treated wastes was issued by that agency to the Container Corporation on July 3, 1957.

In addition to maintaining and operating waste treating facilities approved by the State of Alabama Water Improvement Commission, Container Corporation routinely samples the Conecuh River above the point of its waste discharge and at two points below its waste discharge. One, near Pollard, Alabama, and the other near Century, Florida. The samples obtained are regularly submitted to the Alabama Water Improvement Commission.

Annual biological investigations have also been made on the rivers by the Institute of Paper Chemistry under the contract of Container Corporation.

Container Corporation has been operating in compliance with the waste discharge permit issued by the Alabama Water Improvement Commission and the Company intends to continue to fully operate in this manner.

DR. GILL: One other industry in the area is represented and that is the T. R. Miller Lumber Company and we have with us Mr. W. T. Neal, Vice-President of the T. R. Miller Company. Mr. Neal.

MR. NEAL: Mr. Stein, Dr. Gill, Ladies and Gentlemen: The operation of the T. R. Miller Mill Company has been adequately described in the reports given here today. One operation involved is the waste discharge from wood preservation plant, and I might add, that has been in operation since 1927 and the method of waste control, that of operating a sediment basin, has been the same since the plant was originally built. There has never been any significant pollution from the waste discharge as far as we know.

The question did arise in the fish kill in 1961 that something could have possibly have gotten away from that plant and could have affected this. Since that time upon the advice and recommendation of the Alabama Water Improvement Commission this sediment pond, which has been used up there, has been more than doubled in size and deepened so that the soil back around this pond at the deepest point is about three feet. Since that occurrence there has been no discharge from this sediment basin. Evaporation and sediment takes care of it. There could be times during heavy rainfall where there might have to be some discharge from the pond, however, there will be no discharge made from this pond except under the supervision of the management of this plant. These things are founded on the recommendations and we believe that proper precautions have been taken to prevent anything reaching the streams.

DR. GILL: Thank you, Mr. Neal.

Let me call on one other person. We have with us Mr. I. B. Byrd, Chief of Biology of the Fisheries Section, Division of Game and Fish, Alabama Department of Conservation. Mr. Byrd. I don't know how much time he has spent on fish biology but he has spent a great deal.

MR. BYRD: Thank you, Dr. Gill. Mr. Chairman, Ladies and Gentlemen: Mr. William C. Younger, the Director of the Alabama Department of Conservation, has asked that I present a very brief statement on behalf of the Department.

The fisheries biologists of our department have worked very closely with the Water Improvement Commission of Alabama since the time that we first had a biology section in the Department. We are vitally concerned about the effects of pollutional wastes on fish. So immediately then upon the first notification of any fish kill this gets the top priority in our section.

We work in determining fish populations in areas prior to the location of a new industry and following the initial operation of the industry. In the case of the Container Corporation of America the fishery staff of our department cooperated with the fishery staff of the Florida Game and Fresh Water Fish Commission, fishery staff of Auburn University and the staff of the Alabama Water Improvement Commission in conducting fish population studies on the Conecuh River. The first study was in July of 1957, which was some six months prior to the time of the operation of this plant. I notice that it was conducted with the same people cooperating in August of 1958, which was some nine months following the operation of the plant. These population studies indicated, and it has already been brought out in the report, that there was no significant difference in the fish population in the Conecuh-Escambia system prior or following -- and following the operation of the plant of the Container Corporation of America.

We received the first notice of the fish kill in the Conecuh-Escambia system in August of 1961 and within two hours our crew was on the way to investigate this in cooperation with the Water Improvement Commission of Alabama. We made a rather extensive study. We traced the fish kill to the outfall of the T. R. Miller Lumber Company and we have considerable evidence, a lot of it circumstantial, that the kill was probably caused by the T. R. Miller Lumber Company. We were vitally concerned and we immediately went to all sources and made use of all the resources that we had available to the Water Improvement Commission. We assisted in getting all the available data analyzed by the toxicologist of Alabama. In other words, I am trying to emphasize that we are vitally concerned about this area and we are very vitally concerned about not polluting the streams of Florida as we are about not polluting the streams of Alabama.

One other brief point with regard to the tainted taste of fish. When we made those studies in cooperation with the biological staff of the Florida Game and Fresh Water Fish Commission in 1957 they had heard reports that some fish had a bad taste. So we took samples of the fish taken from this fish population study on the Escambia River below the Container Corporation of America plant and we took them to a restaurant near Brewton -- Barnes Restaurant, I believe, is the name of it, and suggested that the manager prepare these fish with new oil and keep them separate from another batch of fish that he bought from his normal sources of supply, which, he indicated to us, was from the Tennesaw River, which is allegedly an unpolluted area. All of us, and this included men from the Florida Fresh Water Fish Commission as well as several men from our staff, agreed that the fish taken from the Conecuh-Escambia were really better than those taken from the Tennesaw River of Alabama.

Thank you, very much.

MR. THOMAN: May I ask you one question? Have you done any fish population studies in recent years?

MR. BYRD: No, sir. Only the ones that were mentioned.

DR. GILL: In '57 and '58.

Mr. Chairman, that is the group that we wanted to present but I have one other name of a gentlemen who said he would like to be heard. Mr. Ralph Richards, who is the President of the Alabama Fisheries Association of Mobile. Mr. Richards.

MR. RICHARDS: I am Ralph Richards of the Alabama Fisheries Association and I am also Vice-Chairman of the Water Pollution Commission of the Mobile County Conservation and Wildlife Association. I was invited to this meeting by Mr. Younger, our Conservation Director of Alabama. I am not -- I hesitated to speak, Mr. Chairman, because I was not sure whether this was an open meeting or a closed meeting or whether you wanted me to speak or not.

THE CHAIRMAN: You have full privileges to speak just as anyone else. Go right ahead.

MR. RICHARDS: Thank you, sir. First of all I am not going to point -- I want to point out right off that I don't have any of the information that you were talking about. My only concern is of the commercial fishermen of Alabama and the salt water division especially. These polluted areas, such as the one we are talking about, do affect fishing in Alabama. Now, I am not complaining for Alabama about the situation but I want to point out to you in this situation that the commercial fisheries are very much concerned on the matters of pollution such as we are discussing here today.

I am familiar with the T. R. Miller Mill Company and we have packed many pounds of fish in their boxes and I am familiar with the Container Corporation and we have packed many pounds of fish in their boxes. The fishing industry is a customer of both of these companies. The fishing industry is important to both of these companies and we fear that maybe these companies do not realize the extent of effects of water pollution. Now, the very fact that they do admit that they do dump and do pollute is a danger of this particular thing that I can't even pronounce. It is evident that there is a danger that the fish can become endangered and from the actual fish kills it has been proven that the fish have been damaged to some extent.

We don't know to what extent that has damaged the estuaries or whether the oyster and shrimp before migration from Florida to Alabama and up and down the coast. Alabama depends on about 80 percent of its shellfish and shrimp from other States, Florida, Louisiana, and Texas and other places. Of course, our oyster population in Alabama is affected by pollution in Florida and Mississippi. I did want to point

that out because it is important to us. I think it is also important to the companies involved.

The Alabama Fisheries Association is a group of people affiliated with the fishing industry either in wholesale or in the production of the seafood and fish and fresh water production.

I am not a paid President. I serve on my own and I travel at my own expense and my interest is in that of the other fishing industries along with the other persons not able to attend. We are very interested in the part that we may play in our rivers. I am sorry that we don't have commercial fishermen here from these rivers, because the testimony from our commercial fishermen differs quite a bit from the testimony given from the biological point of view. We have to go on unskilled people giving unskilled information mostly word of mouth and testimony and I am sorry that I do not have anything for this river, but I do want to point this out and just be heard. I didn't want it to go unsaid. We are concerned about any pollution in any one of the streams. And anyone that pollutes, whether a municipality or a paper mill, the fishing industry considers them an enemy and we make no compromise with anybody that pollutes any stream. Now, these people are allowed to pollute by law in Alabama and we are hopeful that we can support legislation that will stop that too. We don't go along with any of it.

I notice in this brief that there are 38,000 square miles in Escambia Bay that is threatened in regard to the fish population. I am quite sure that the Board of Directors of these companies in New York or London would not go along with the fishing people threatening 38,000 acres of pine timber or let alone killing it and then not offering to pay for it or any compensation. So we are very greatly concerned and I just wanted to go on record from Alabama as expressing that.

Thank you.

THE CHAIRMAN: Any comments or questions?

DR. GILL: (Shakes head negatively).

Mr. Chairman, that is all that I indicated who desire to be heard.

THE CHAIRMAN: Before we attempt to summarize perhaps we can discuss this. Is there anyone else who wants to be heard at this time who has not been heard from? If not perhaps we can attempt to summarize this and any discussion or modifications, as I said, would be appreciated from the Conferees. I think in this conference, as

we do in practically all of them, I am hopeful to come up with unanimous findings and determinations from the Conferees. I think it can be said that the Conecuh-Escambia River is an interstate stream and a navigable stream within the meaning of the Federal Act by crossing the border of Alabama and Florida.

I think that we can say, and the Conferees agree, on the basis of the material presented at this conference and on the reports and other data we have examined and the Conferees have looked at it, that the pollution of interstate waters as subject to abatement under the Federal Act is not occurring in the Conecuh-Escambia River system at this time.

I think we could say something about the adequacy of measures taken in trying to provide abatement of the pollution. If the industrial pollution prevention measures are taken by all industries providing treatment and they are adequately maintained and operated, that is, the Container Corporation, the Pollard Oil Fields, and the Miller Lumber Company, these measures at the present time probably prove adequate to abate pollution now. However, it should be noted that three municipalities, Brewton, East Brewton, and Flomaton are not providing treatment of any kind for their municipal wastes and domestic wastes. However, the effects of this have not been demonstrated at the present time to have any interstate effect and in that case I think we are confined to the delays, if any, encountered in the abatement of interstate pollution. I think the only delays we possibly might have are the delays of these municipalities putting in a treatment system. I think we have heard from these municipalities and two of the cities are or, I think there is an active program and we can look toward the installation of the facilities. We are sure that Alabama under its program will secure adequate treatment in all three communities, that is Brewton, East Brewton, and Flomaton.

Now, I think, that despite these determinations by the Conferees I am sure that all the Conferees, State and Federal, have an open mind on this situation. If anything develops I am sure that appropriate action will be taken in the first instance by the States. We have had a suggestion made that biological surveys of the water quality of the Escambia-Conecuh River should be continued and this should be emphasized by examining the river at critical periods, that is, when there is low flow and high temperature. It seems to be indicated that the effect of the discharges into the streams on the fish population, whether they are affected directly or indirectly, should be checked more thoroughly. And these should be done further to check the effects of the discharges on the growth of the caddisflies and mayflies and, specifically, on the growth of Sphaerotilus. Whether the Sphaerotilus is on the increase and whether it is being found further downstream each year and whether that Sphaerotilus will affect certain of the desirable organisms that are in the stream.

The State programs should place, as they are doing, special emphasis on the assurance that spills of toxic or other materials will be prevented and safety devices installed. And, again, I think the Conferees will agree that there should be an examination of the bacteriological quality of the water in the Conecuh-Escambia system, particularly at the State line. I think it is pretty generally agreed that in situations of that type the agencies primarily responsible for this are the official State Water Pollution Control Agencies of Alabama and Florida, and, of course, in conjunction with the cooperating agencies, such as, the Fish and Game Departments. These State Agencies, as demonstrated in the past, indicate that they certainly can do these studies and should undertake those now.

We would say because of the interstate interest we have in the stream that if the official State Agencies feel that they would want the help of our Department we would respond very sympathetically to your request if you should, or if you feel that you would, like our technical staff to help you either in the setting up, the conduct, or the evaluation of the experiments. This help will be supplied on a State request.

If any further information is developed which indicates that the situation has changed and that there might be pollution subject to abatement I think we can expect that the States concerned will see their duty and see to abate them.

We would also like to commend all the parties here, other than the State and Federal Agencies, that is, the industries and the municipalities concerned and the people here for a very cooperative attitude on controlling pollution. I think everyone here has indicated that they recognize their responsibilities and their joint responsibilities in keeping the Conecuh-Escambia River Basin clean and free of pollution. And all seem to be making a reasonable effort in that regard.

Now, are there any comments on my observations?

MR. LEE: I would like to comment, Mr. Chairman. I agree in principle with everything you have said but I don't agree that there is no deleterious material affecting the interstate waters at this time. I can't let it go by without commenting that there is pollution and it is per se in the total stream, which may not be affecting the reasonable use of water at this time, but the continuing lowering of this indicates there is a degradation in the waters up there. It probably hasn't reached down as low as Florida but I can't agree with the statement of "no pollution" because there is some pollution in the stream.

THE CHAIRMAN: I think we are in agreement, Mr. Lee. What I thought I said was that at this time no pollution subject to abatement under the Federal Act exists.

MR. LEE: I agree with this.

THE CHAIRMAN: That is at this point. Do you have any other statements?

MR. LEE: No, I am not pointing any fingers and I didn't want to leave it carte blanche and say there is no pollution.

THE CHAIRMAN: I think in the summary we have recognized that there are discharges into the Escambia --

MR. LEE: Into the whole stream.

THE CHAIRMAN: Right.

MR. LEE: Affecting the interstate use of it.

THE CHAIRMAN: Dr. Gill, do you have any comments or questions?

DR. GILL: No, I think we can agree with the statements that you have made. I do want to say that we probably need to be doing some bacteriological studies which we have not been doing, primarily because there didn't appear to be any real reason for so doing. Two of our cities are going to get their wastes out of the river in the not too distant future and I think we ought to get some studies before they remove them as well as afterwards.

And I would say that we are happy to accept your offer for technical help if we ever need it, we will call on Cincinnati to work with us.

I do, also, want to say that Florida and Alabama have always maintained a very cordial relationship and we are going to continue to do so.

MR. LEE: We certainly will.

MR. GILL: If there is any development in Florida on this river we would like to be informed of it very promptly so that we can see if we are involved, otherwise I think you stated it very well Mr. Chairman.

THE CHAIRMAN: Is there anyone in the audience who feels that they want to express a complaint?

MR. RICHARDS: Mr. Chairman, I am Ralph Richards, again, and there is one question I would like to ask for a point of information. In the case of T. R. Miller that was established in 1927 and from the information I gathered in Alabama he is legally allowed to pollute. Now Container Corporation was built after 1951 and does, therefore, not come under what is known as the Grandfather clause in Alabama and technically they are not allowed to pollute. Now, T. R. Miller is allowed to pollute and its pollution is allowed to go into Florida so

what question does that raise? I mean, where does he stand with the Florida authorities? I am asking this for clarification.

THE CHAIRMAN: I think we can answer that question for you. One, let me point out that we have no indication here that T. R. Miller is causing any pollution so as to endanger the health or welfare of any persons as of this moment, at least, in their operation on the Conecuh-Escambia system. However, the Federal Law is pretty clear I think and this is that if pollution in one State endangers the health or welfare of the persons in another State then that pollution is subject to abatement in accordance with the procedures. This conference is one of the steps that you have seen here. And this is done without regard to Grandfather Clauses or anything else in State Statutes.

MR. RICHARDS: In the case of an accidental fish kill what liability does he have since he is legally allowed to pollute and he had quite a large accident and killed quite a few fish. What is his liability in that case?

THE CHAIRMAN: Well, again in a fish kill situation the liabilities in the fish kill relate to a specific case and it is, I think, a very, very difficult thing to predict. Now, I am not trying to duck your question and I would like to talk about this in the abstract sense and not give any specific answer. There was a company which was -- I think it was a well publicized case, the Glen Alden Corporation of Pennsylvania, and they were found responsible by the State for an extensive fish kill. This case had a considerable amount of negotiation. The determination was reached that a fine of something like $36,000 to restock the Pennsylvania waters for those fish and would compensate for the damage. This was an agreement worked out in negotiations between the Game and Fish authorities there and the Glen Alden Company. I think the theory they went under was that if someone is polluting and they have an accidental spill such as this they are not exempt from being liable. Assessments of damage, if there are any, in a fish kill are generally assessed under another act, the Conservation Act or the Fish and Game Act.

MR. RICHARDS: Thank you.

THE CHAIRMAN: If there is nothing more then I think we can stand adjourned and I would like to thank you all for coming and participating.

I would like to just say one thing again and that is that I think you have evidence here of a cooperative program of the States and industry to deal with a pollution problem. From my experience this has been the best case that I have been associated with and one

where we have come up with the least problems. I think we have to recognize that as we increase our population and industry in this country we are going to get more and more of these problems and we are always going to be faced with a thin line between pollution and clean streams and this goes for every river in the country. There is always this potential and this has to be watched constantly. Never ever could you replace it. I think with the State Agencies here and the attitude expressed by the people in these general areas, I do think you have the facilities and the will to meet this problem.

Thank you very much for coming and we stand adjourned.

(Whereupon, the above-entitled matter was adjourned.)

C E R T I F I C A T E

G E O R G I A)
)
FULTON COUNTY)

I, Charles Walter Floyd, being a Notary Public in and for the State of Georgia at Large, do hereby certify that the above and foregoing is a true and correct transcription of my stenographic notes taken at the said proceedings, and was reduced to typewriting under my direct supervision.

I further certify that the above and foregoing has not been changed in context but was edited under my supervision.

WITNESS my hand and official seal this the 21st day of December, 1962, at Atlanta, Fulton County, Georgia.

Charles Walter Floyd
CHARLES WALTER FLOYD

Notary Public, Georgia, State at Large
My Commission Expires July 16, 1966

(SEAL)

APPENDIX A

ATTENDANCE LIST
CONECUH - ESCAMBIA RIVER CONFERENCE
PENSACOLA, FLORIDA
October 24, 1962

NAME	ORGANIZATION
Adams, Charles E. Assistant Technical Superintendent	St. Regis Paper Company P. O. Box 1591 Pensacola, Florida
Adams, Sarah M. (Mrs. C. E.)	Route 1 Box 345 Cantonment, Florida
Balmer, Robert R. Water and Waste Group Supervisor Engineering Department	du Pont Company Wilmington, Delaware
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Berkowitz, Sidney A. Assistant Director, Bureau of Sanitary Engineering	Florida State Board of Health P. O. Box 210 Jacksonville, Florida
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Broxson, R. P.	Route 4 Box 140 H Pensacola, Florida
Byrd, I. B. Chief, Fishery Biologist Division of Game and Fish	Alabama Department of Conservation Montgomery, Alabama

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Carr, Robert E. Fish Management Specialist	Florida Game and Fresh Water Fish Commission Route #1 Holt, Florida
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Crockett, J. F., Jr. Director, Technical Staff	Alabama Water Improvement Commission State Office Building Montgomery, Alabama
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Horn, Max President	Pensacola Anglers and Hunters Club 121 2nd Avenue Pensacola, Florida
Jasper, Paul News Reporter	Pensacola News Journal Pensacola, Florida
Jones, Leon B.	Tri-City Chamber of Commerce Flomaton, Alabama
Kittrell, F. W. Public Health Engineer Water Supply and Pollution Control	Dept. of Health, Education & Welfare Public Health Service Cincinnati, Ohio
Knisley, Mrs. M. R. President (Local Section)	League of Women Voters 344 Woodbine Drive Pensacola, Florida
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Mackenthun, Kenneth M. Aquatic Biologist Water Supply & Pollution Control	Dept. of Health, Education & Welfare Public Health Service Cincinnati, Ohio

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Thoman, John R. Regional Program Director Water Supply & Pollution Control	Dept. of Health, Education & Welfare Public Health Service Atlanta, Georgia
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NAME	ORGANIZATION
Weaver, L. D. Mayor	Town of Flomaton Flomaton, Alabama
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Whitworth, H. E.	514 N. Old Corry Road Pensacola, Florida
Witcher, Chris A., Jr. Senior Biochemist	Chemstrand Corporation P. O. Box 1507 Pensacola, Florida
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